

# MINING CONGRESS JOURNAL



OFFICIAL

PUBLICATION



# outlook HE GOES to the COAL SHOW

*Because:*

He's on the alert for ideas to

**mine coal safely**

**mine coal at a minimum cost**

**produce the most salable coal fuel**

He knows that the most prolific source of ideas is

**the Convention discussions**

**the Exposition of mining machinery  
and supplies**

**the "exchange" between mining men  
from all parts of the country**

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All three are track-mounted, all highly flexible . . . they convert face operation into smooth routine. We invite you to immediately investigate the operating conveniences and low-cost advantages of these three Jeffrey units. We will be glad to send you engineering data.

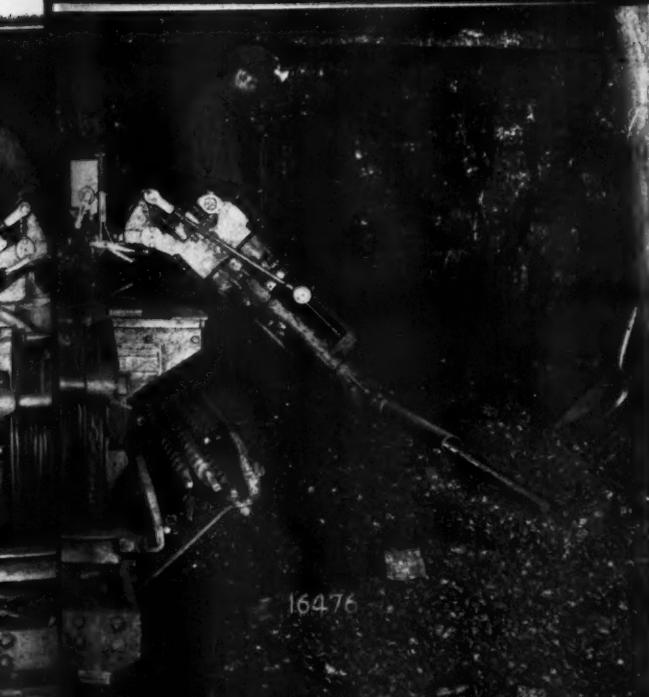




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# MILLIONS OF TONS UP THE SLOPE, SINCE 1931 ON THIS LINK-BELT CONVEYOR

BELL AND ZOLLER COAL AND MINING COMPANY  
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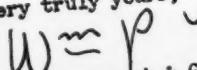
W. P. YOUNG  
Vice-President & General Manager

Box 270  
PEKIN, ILLINOIS

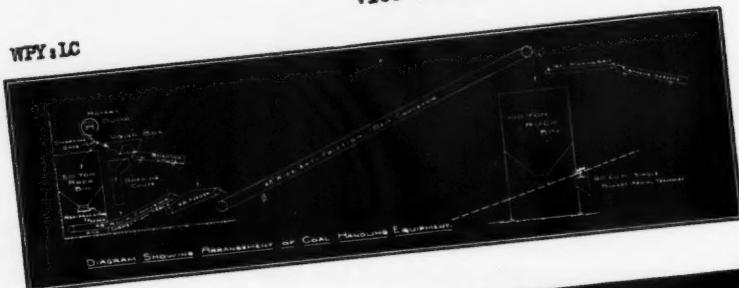
Link-Belt Company  
307 North Michigan Avenue  
Chicago, Illinois

Gentlemen:

We have just recently passed the 5,000,000 ton mark for coal handled by this installation and in addition have handled approximately 400,000 tons of rock on this belt conveyor, with practically no replacements made on the idlers.

Very truly yours,  
  
 W. P. Young  
 Vice President & General Manager

W.P.Y. LC



• Over eight years ago Bell & Zoller changed over their Crescent No. 6 Mine from vertical hoisting in self-dumping cages to conveyor slope haulage, as shown by the accompanying diagram. By dumping on the bottom and conveying rock and coal to the surface with this Link-Belt equipment, they were able to more than double the hoisting capacity and cut operating and maintenance costs.

As Mr. Young points out in this letter, over 5,000,000 tons of coal and approximately 400,000 tons of rock have been carried to the surface over this Link-Belt anti-friction belt conveyor **WITH PRACTICALLY NO IDLER REPLACEMENTS BEING MADE.**

You can be sure of low-cost, long-life, trouble-free conveyor service by using Link-Belt anti-friction idlers, trippers, bearings, drivers, take-ups and other units, on all belt conveyor installations throughout your operations.

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## LINK-BELT HANDLING PREPARATION EQUIPMENT

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Manufacturers of TIMKEN Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; TIMKEN Alloy Steels and Carbon and Alloy Seamless Tubing; and TIMKEN Rock Bits.

Photograph shows some of the 1,000 Timken Bearing Equipped mine cars at the Warden Mine of The Pittsburgh Coal Company. These cars already have compiled service records ranging from 10 to 14 years and according to a recent report still have a long life expectancy. The operating company has expressed itself as having "nothing but the highest praise" for the service received from TIMKEN Bearings. Specifically that means more loaded cars hauled per train, greater availability of cars for service (less time in repair shop), and drastically reduced lubricating and maintenance expense. These advantages combine to achieve lower cost per ton hauled wherever Timken Bearing Equipped mine cars are used.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

# How to Get the Most Out of Your Rock Drills



## No Oil-Rotted Hose or Old Pipe Feeds my Drills. . . .

When I started out as shift boss, I wanted to make a good showing, so I thought I'd keep costs down by using old pipe and hose.

There's where I made my mistake. Everytime something hit the pipe, pieces of scale would break loose, clog up the drill, and score the cylinder. If it wasn't the pipe it was the hose that caused the trouble.

Now I know that anything that stops my machines ties me up and raises costs. So you don't find rotten hose or old rusty pipe feeding my drills, and I don't mean maybe!

\* \* \*

### ***Oil-Rotted Hose and Old Pipe Cause Delays and Increase Drilling Costs***

#### ***Please Note***

This is one of a series of talks intended to create a greater awareness of operating conditions, so that the users of rock drills can more nearly get out of their machines what the Ingersoll-Rand Company's designers, engineers, and metallurgists have built into them. Reprints of this talk or of any of the series may be obtained from your bulletin boards, for use as payroll stuffers, etc.



1. Pipe scale clogs the drill and wears and scores the parts.
2. The rubber particles from rotted hose clog the valve of a drill.
3. New pipe and new hose do away with expensive air leaks and give better drilling pressures.
4. Water traps in the air lines keep moisture out of the air. This prevents the drill parts from rusting and helps lubrication.
5. Keep your air lines clean. Blow them out thoroughly so that there is no danger of dirt or scale getting into the drill.

This picture shows how pieces of hose clog the ports of a cylinder.



797-5

## Take Care of Your Rock Drills and You'll Increase Your Profits

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Birmingham  
Boston  
Buffalo  
Butte  
Chicago  
Cincinnati  
Cleveland

Dallas  
Denver  
Detroit  
Duluth  
El Paso  
Hartford  
Houston  
Kansas City

Knoxville  
Los Angeles  
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New York  
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11 BROADWAY, NEW YORK CITY

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### King Coal Say:

GET WISE—SCRUTINIZE  
Coal Show plans on pages 48 to 50.

It's only a little over a month before the doors of Music Hall in Cincinnati will again swing open on the annual Coal Show of the American Mining Congress, April 29-May 3.

Preliminary plans are being polished up and finishing touches added. Watch the April issue of MINING CONGRESS JOURNAL for the final official preview of the Convention and Exposition, and lay your plans to be on hand when this record-breaking show gets underway.

# MINING CONGRESS JOURNAL

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MARCH, 1940

No. 3

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*Opinions expressed by authors within these pages are their own, and do not necessarily represent those of the American Mining Congress*

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## THE AMERICAN MINING CONGRESS

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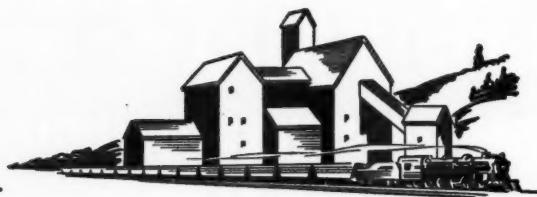
Howard I. Young, President

Edward B. Greene, Vice President

David D. Moffat, Vice President

Donald A. Callahan, Vice President

Julian D. Conover, Secretary



## Away from Democracy

**W**ORLD WAR I was successfully waged to make the world safe for democracy.

Its horrors, for a time, overshadowed the trend in the United States toward centralization of power in the Federal Government, which was a movement away from democracy.

Our democracy was based upon the right of every individual to do anything which did not encroach upon a similar right of his neighbor, and upon the rights of the several states to control their own domestic affairs, both so carefully protected by the Constitution.

These rights were zealously guarded during the period of our greatest growth. Until the states were ready to assume control, it was essential that the public domain should be administered by the Federal Government.

With the creation of the state governments, each with all the powers and responsibilities of the original thirteen states, each under the necessity of providing by taxation for the administration of government, for the building of Court Houses and the enforcement of law, for the maintenance of schools and public roads, a new condition was created requiring a greater measure of local control.

For many years the people of this country were in practical accord with the doctrine stated by President Lincoln that "The public lands are an impermanent national possession held in trust for the maturing states."

The development of the West and the growth of the nation under this theory were the wonder of the world, and continued so until a new theory under the misguiding title of "Conservation" became the basis of a so-called progressive movement manifesting itself as a political issue. A central cause of irritation was the administration of much of the public domain by the then newly organized Forestry Service.

Acerimonious discussion over this dispute reached its climax by the withdrawal from entry of the coal lands of Alaska and the outlined plan for the leasing of all power resources, as a substitute for the long-time practice of granting title under fixed conditions for the discovery and development of such natural resources. Much bitterness was developed when the Forestry Service undertook to prevent the granting of title to claimants who had either partly or wholly completed the requirements of then existing laws, and who believed they were being robbed of property to which under the law they were fully entitled.

The old theory was based upon the belief that improvement and development and the creation of taxable property was ample recompense to the Government for its unproductive ownership, and a necessary reward to the pioneer upon whose efforts the country must rely for growth. Then, too, there was well-grounded belief that the sooner the Government had divested itself of all property except such as might be required for purposes of government, the better it would be for the nation.

This movement toward centralization of power in the Federal Government has gone steadily forward, and in the belief of the writer constitutes the greatest danger to representative government. At the time when the public lands issue became important, the Federal Government was, and still is, the owner of more than one-half of the land acreage west of the Missouri River.

These western states are required, by the several enabling acts, to maintain an adequate state government over all this territory by taxes levied upon less than half its extent. This was the first great movement toward centralization of power in the National Government. Since then this trend has moved forward by many and various devices. A recent manifestation was unveiled at a conference of southern Governors at Fort Lauderdale, Fla., in the following words of Governor Bailey, of Arkansas:

"The appointed executives have said, 'You must surrender to us certain important attributes of state sovereignty or we will cut the throats of your distressed people.' " And, in conclusion, Governor Bailey said, "If you will inspect the situation in Washington today, you will find all of this movement to change our method of government is done behind closed doors by men who do not bear the party label."

If Governor Bailey will study the general situation more thoroughly, he will discover that his complaint embraces but one of hundreds of tendencies equally in violation of the principles of Jeffersonian democracy which he, very properly, regards as fundamental to the progress of this nation.

# MINING CONGRESS JOURNAL

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No. 3

Richard J. Lund, Editor

## MINING'S CASE AGAINST TRADE PACTS

THE mining industry has again made urgent and emphatic representations for redress of harm done it under the Reciprocal Trade Agreements program by appearing before the House Ways and Means Committee and the Senate Finance Committee hearings on continuation of the authority to conclude the agreements. Concise and pointed statements made by the American Mining Congress, American Zinc Institute and Tri-State Zinc and Lead Ore Producers Association before the House Committee are shown in full on pages 26 to 32.

The entire argument may best be summarized by quoting the resolution on the reciprocal trade program adopted unanimously by the American Mining Congress at its last annual meeting in New York, upon which the briefs were built:

"We do not favor the extension of the Reciprocal Trade Agreements Act unless it is amended to eliminate certain defects which experience has developed:

"1. The policy of gratuitous extension of concessions to nearly all countries does not result in benefits to the United States equivalent to its sacrifices and should be abandoned.

"2. The Trade Agreements Committee has not given each commodity the careful, complete and expert consideration it deserves, and has inflicted unduly severe burdens on established domestic industries.

"3. Administrators of the act have not applied the treaty provisions permitting modification where exchange rates are seriously altered.

"4. They have not utilized clauses in the treaties providing for withdrawal of specific commodities when countries outside a given pact reap the principal benefits at the expense of our domestic industries.

"5. The practical application of the act has not demonstrated a feasible method to provide tariff increases when necessitated by changed domestic conditions.

"6. Reciprocal trade agreements are in fact treaties and should be ratified by the Senate."

Summarizing his plea for an amendment requiring Senate ratification, Julian D. Conover, Secretary of the Mining Congress, stated before the Senate Finance Committee:

"\* \* \* regardless of the legal questions involved, the interests of American industry and labor call for some check upon misdirected zeal in the negotiation of these compacts. The requirement of Senate ratification would make the Trade Agreements organization more conscious of its obligation to adhere to its stated policies, to be careful and accurate in its findings of fact, and to safeguard domestic industries against injury.

"We ask in all earnestness, is there any reason why our American citizens should not have the same privilege enjoyed by the people of other nations, of scrutinizing the contracts made in their behalf, and communicating their views to their representatives in the Senate, who may then approve or disapprove these pacts? Are the Members of our Senate any less competent to pass on treaties than the legislative bodies of other countries, the great majority of which subject their agreements to ratification?

"We plead for a resumption by the Senate of its proper function in the conduct of our foreign affairs by reviewing the acts of executive agencies which may mean life or death to important segments of our economic life."

Testimony of the witnesses and detailed questioning of Howard I. Young, president of the American Mining

Congress and the American Zinc Institute, together with his pertinent responses, seem to have made a deep impression on the Committee, as evidenced by the concluding remarks of Chairman Pat Harrison, quoted on page 27.

It is greatly to be hoped not only that corrective action will soon be taken for harm done a vital American industry, but also that the Senate will safeguard the continuation of sound, productive enterprise in the United States by insisting on exercising the duty with which it is specifically charged in the Constitution—namely, the ratification of all foreign treaties.

## INCREASING BURDEN OF QUESTIONNAIRES

TO THE great class of white collar workmen in American industry the months of February and March bring not harbingers of spring, but the usual headaches of trying to figure out from highly technical instructions the toll due to State and Federal Governments for the privilege of being governed. In short, income tax time is questionnaire time.

The experience of the average layman in this respect, serious though it may seem to him, is mere child's play compared with the heavy hand laid on industry by a government hungering for more and more detailed data, furnished either on a regular periodic basis or on special occasions, for surveys that are termed indispensable to the country's welfare. Larger and larger staffs are required to accomplish this work, and more and more valuable time of responsible executives must be surrendered to this unproductive phase of industrial activities.

In a clever satire on an annual report, a newspaper columnist recently included this paragraph which carries a bit of bedizened truth concerning the above:

Your company was able to get a little work done around the plant in 1939 by naming six vice presidents in charge of visits from axe agents, thus saving the higher executives a major amount of time. We built a new wing onto the factory in which all data, facts, figures, reports, explanations and apologies demanded by the government may be prepared and turned out. This plant is capable of answering 500,000 inquiries from Washington per week. Plans are being drawn for a half million dollar annex in which all summonses to congressional probes can be received, filed and catalogued without confusion.

In commenting on this same matter, a prominent mining executive has written as follows:

If we had less governmental supervision and did not have the multifarious details in connection with demands for information to be made up on the interminable forms of the various departments, commissions and bureaus, there would be more time for practical matters pertaining to the operation of business and the management of industrial activity.

There is not an industry or business in the country which is not in actual need of the time and the talent it takes to comply with the extraneous requirements of these governmental administrative bodies in Washington and elsewhere. The tremendous load of this matter is requiring more time and attention of executives and management than can be spared without injury to and neglect of more important things.

This should not be taken as a broad indictment of every phase of government fact-finding, since much of the information is admittedly necessary and useful. It is intended, however, to urge that members of industry call this specifically to the attention of their representatives in Congress, who may thus have some concept of the burdens on productive enterprise created when they set up more and more self-perpetuating agencies, an increasing number of which adopt the time-honored expedient of sending out impressive questionnaires and special investigators as a means of justifying their existence.



Kramer mine of Northwestern Mining & Exchange Company, where an enviable safety record has been recognized by the award of a Joseph A. Holmes Safety Association certificate of honor. The Oyster and Toby mines of the same company received similar awards

## SAFETY WORK at Mines of Northwestern Mining & Exchange Co.

THAT accidents in and around coal mines can be reduced and the mines worked safely if all the employes are safety conscious and the men at the face get solidly behind the safety program has been demonstrated at the mines of the Northwestern Mining and Exchange Company of Du Bois, Pa. With an output per man employed comparing favorably with other operations in the same district, this group of mines has been awarded the following certificates of honor by the Joseph A. Holmes Safety Association:

*Northwestern Mining and Exchange Company.*—For having operated without a fatality from September 17, 1933, to January 1, 1936, employing an average of 2,000 men, with an exposure of 5,837,520 man hours in the production of 2,544,033 tons of coal by hand loading methods from a bed about 3 feet thick.

*Kramer Mine.*—For operating without a fatality from March 28, 1937, to January 1, 1939, employing an average of 1,200 men, working 2,940,630 man hours and producing 1,463,661 tons of coal, all hand loaded, from a bed averaging 4 feet in thickness and practically level, 26 percent of the tonnage being from pillars.

*Oyster Mine.*—For operating without a fatality from January 1, 1917, to January 1,

### ● *Eighteen Methods of Safety Education and Promotion Have Proved Highly Successful at Operations Enjoying Enviable Safety Records*

By C. H. MAIZE

Mine Inspector  
Northwestern Mining & Exchange Company

1939, employing an average of 150 men, who worked 3,840,885 man hours and produced 1,449,294 tons of coal, all hand loaded, from a bed averaging 2 feet 4 inches in thickness and practically level, 15 percent of the tonnage being from pillars.

*Toby Mine.*—For operating without a fatality from April 2, 1931, to January 1, 1939, employing an average of 250 men, working 1,894,582 man hours and producing 920,927 tons of coal, all hand loaded, from a bed about 3 feet thick and practically level, 35 percent of the tonnage being from pillars.

Four operations comprise the Northwestern Mines: (1) Kramer Mine, which is a gaseous mine, producing 1,000,000 cu. ft. of methane in 24 hours and 4,500 tons of coal a day; (2) Kyler Mine, which is a non-gas-

eous mine, producing 800 tons of coal a day; (3) Toby Mine, which is a non-gaseous mine, producing 350 tons of coal a day, and (4) Oyster Mine, which is a non-gaseous mine, producing 100 tons of coal a day.

Kramer Mine is a shaft mine operating in the Lower Freeport seam of coal; Kyler and Toby mines are drift mines operating in the Lower Kittanning seam of coal; Oyster mine is a drift mine operating in the upper Kittanning seam of coal.

### Active Safety Program Begun in 1932

Prior to 1932 no particular effort was made to reduce accidents, except,

of course, the necessary adherence to the bituminous mining laws and the observance of a few standard safety rules. On June 1, 1932, an active safety program was promulgated, which started with the employment of a full-time safety director or mine inspector. No phenomenal results were expected from this safety program, since the officials realized that no safety campaign will show results immediately, but that a period of at least five years must elapse before any definite results will be noticeable.

The results that have been obtained, briefly stated, are as follows:

	Average 1931	1932 to 1939 inc.
Cost per ton.....	\$0.031	\$0.023
Frequency—All accidents.....	100.00	89.67
Frequency—Compensable accidents.....	69.30	49.00
Severity.....	7.00	3.87

The cost per ton was less than in 1931 in six out of the eight years following 1931. The frequency of all accidents was less than in 1931 in five out of the eight years following 1931.

The frequency of compensable accidents was less than in 1931 in eight out of the eight years following 1931.

The severity was less than in 1931 in seven out of eight years following 1931.

The last record run without a fatality was from March 28, 1937, to October 5, 1939, in which 2,669,420 tons of coal were produced with an exposure of 5,541,551 man hours.

#### Methods to Promote Safety Consciousness

Believing that no safety campaign can be a success unless the men themselves are behind the program and interested in their own safety, methods were devised to make the men more safety conscious and instill in them pride of their own safety record, the safety record of their section, the safety record of their mine, and the safety record of their company.

Also realizing that no one thing can bring the safety message to all men, various methods of safety education were used to bring safety before the men in some manner or form every day as follows.

1. Safety rules which were written and rewritten and revised from actual accident experience were printed in booklet form. These are given to each employee. They are also printed on large cards and posted under glass at strategic points in and about the mines.

2. Safety meetings of all supervisors are held monthly, at which time all



A bulletin board similar to this is maintained at each mine, on which safety bulletins are posted

accidents of the previous month are discussed. The assistant foremen are thus able to tell their men, while they are making their rounds, about accidents that have occurred in other sections of the mine and advise them relative to prevention of similar accidents. At this meeting the relative standing, with regard to accident frequency, of each foreman, assistant foreman, superintendent, and mine of the company is read; also the number of man hours each foreman has supervised in his section without an accident is read.

3. First aid training is given each year to all employees. Interest is maintained by giving a door prize at each first-aid class; also, after a man has received five years of first-aid training he receives a "Permanent First Aid Card." The men have been trained in first aid every year since 1931.

Thirty-two men have received permanent first aid instructor's certificates, and 80 men have received instructor's certificates that are not yet permanent. Each instructor receives a pin showing that he is an instructor. These pins have bars attached showing whether a man has been an instructor one, two, three or four years, or has a permanent certificate which is granted after five years.

Once each year a dinner is held for all permanent first-aid instructors. At this dinner all instructors who have "made" their permanent instructor's rating the previous year are presented with their permanent instructor's certificate.

The instructor's certificates granted employees are divided as follows: Miners, 36; foremen, 34; shot firers, 15; motormen, 8; fire bosses, 7; cutters, 6; brakemen, 6.

4. At least one first-aid team is maintained at each mine. These teams par-

ticipate in the sectional first-aid meet held by the State Department of Mines.

5. Two mine rescue teams, who practice once a month, are maintained at Kramer Mine.

6. A night school in coal mining is conducted for all who wish to attend. A total of 214 man-terms have been successfully completed.

7. A bulletin board is maintained at each mine, on which safety bulletins are posted.

A "movie," consisting of a safety picture and a moving safety message, which is also on this board, is changed weekly.

At the end of the year the names of all men who have been injured are placed on this board.

8. All employees wear safety toe shoes, and in addition all inside employees wear hard hats. Three of the mines are equipped 100 per cent with goggles which were given to the men without cost. If a hard hat prevents an injury entirely or makes it slight instead of serious, the hard hat is placed on the bulletin board with an appropriate safety message and the owner given a new hat. Hard hats, safety shoes and knee pads are sold to the men at cost.

9. The company inspector examines each mine to see that the mining law is being adhered to and that all safety rules are being enforced and obeyed.

10. In case a man receives a serious injury, or an injury that requires him to be hospitalized, the place at which the accident occurred is dangered off until the company inspector examines the place. The fact that the place has been dangered off brings to the attention of all men who see the danger board, that an accident has occurred. All foremen are required to inspect the

place in which a serious accident has occurred.

11. Any foreman or assistant foreman who successfully supervises his men for 100,000 man hours without an accident receives a trip to the annual meetings of the National Mine Rescue Association and the Coal Mining Institute of America. Twenty-one foremen have been so rewarded.

The four foremen with the best safety records for the year are sent to the annual coal convention and exposition of the American Mining Congress.

The men are really interested in having their foremen make one of these trips.

12. If any awards are made, such as Joseph A. Holmes Safety Association awards, a huge safety rally is held at which time the awards are presented and well-known mining men talk to the men on some phase of safety.

13. On each man's personnel record card, a record is kept of all violations of rules, as well as a record of each injury that he has received. If a man is accident prone he receives special attention from the superintendent.

14. All men are given a physical examination before they are employed, and if they are off, due to sickness or an "away from work" accident, they must be examined before they can return to work.

15. When any unusual safety record is made, adequate publicity is given to it in the local daily newspaper. All credit, in the writeups, is given to the men and the foreman is not mentioned prominently.

16. A weekly safety column, prepared by the company mine inspector, is published in the local weekly newspaper. This column deals with home,

Much interest is shown by miners in keeping their section on top, hence shown on this Kramer mine bulletin board. Similar boards are placed at each of company's mines

highway and occupational safety.

17. A bulletin board is maintained at each mine, showing the relative standing of each section for the month, the relative standing of each section for each three-month period, and the section with the best safety record for the year to date. The men watch this board closely, and are very much interested in keeping their section on top of the list. A list of men injured, with a description of the accident, is also posted on this board. The men do not like to have their name on this board.

18. A safety rally is held each year at which time all the men who worked in the safest section of the gaseous

THE MEN IN REED'S SECTION WORKED SAFEST DURING JANUARY

THE MEN IN REED'S SECTION HAVE THE BEST RECORD FOR SAFETY SO FAR THIS PERIOD. GET YOUR SECTION

ON TOP NEXT MONTH STANDING FOR PERIOD

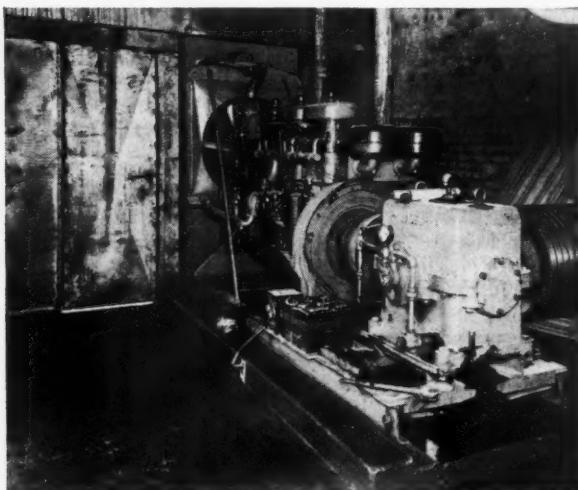
JANUARY	THE DAY SHIFT	JANUARY FEBRUARY MARCH
REED	WORKED SAFEST	REED
KIME	DURING JANUARY	KIME
CHARLTON		CHARLTON
JONES		JONES
BROSKY	ACCIDENTS	BROSKY
PETRICK	DURING JANUARY	PETRICK
BURNS		BURNS
LCHARLTON		LCHARLTON
FYE		FYE
PUDLO	DON'T LET YOUR NAME GET UNDER THIS GLASS	PUDLO
BUHITE		BUHITE
COWIE		COWIE

THE BEST RECORD REED'S MEN FOR THE YEAR

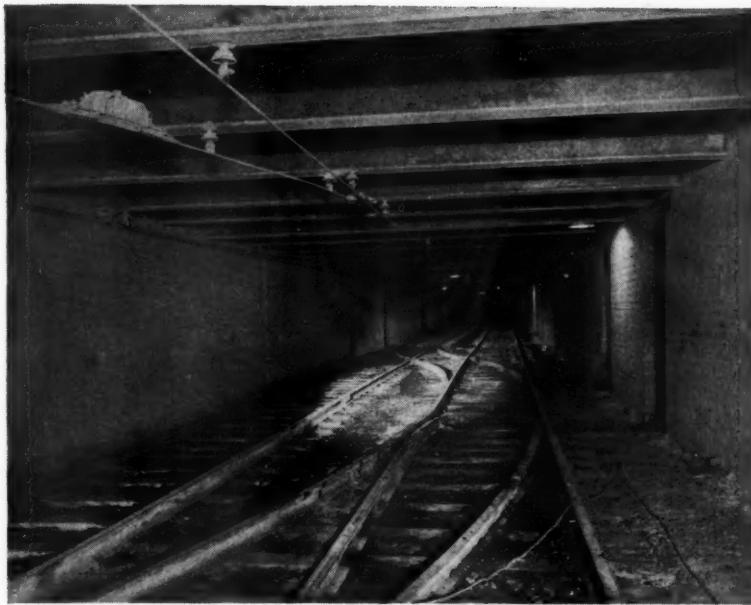
mine, and all the men who worked in the safest section of the non-gaseous mines receive an award showing that they have worked in the safest section that year. The foremen of these sections are given trophies showing they headed the safest sections that year.

#### Men Must Be Behind Program

The Northwestern Mining and Exchange Company came to realize that even if the company carries its entire share of the burden by complying with the mining law, and providing safe equipment and adequate safeguards and competent supervisors, accidents cannot be much reduced unless the men themselves get wholeheartedly behind the safety movement, and the whole accident prevention campaign is directed to this end. Some men can be led and some must be pushed. For that reason, in order to make the men safety conscious, safety information and suggestions are being continually thrown to the men who can be led, and discipline must be used on the men who have to be pushed until they are willing to be led.



Gasoline engine auxiliary drive for main fan at the Kramer mine



12-in. steel beams 18 to 22 ft. long, 40 lb. per ft., are supported by brick walls at this double cross-over near the coal tipple shaft

# Use of STEEL TIMBERING

## in Ellsworth Mines

### ● **Results of Extensive Experiments Started 10 Years Ago Indicate Practicability for Certain Purposes**

By T. R. JOHNS

Manager  
Industrial Collieries Corporation

COMMENCING as far back as in 1921 Industrial Collieries Corporation has made important uses of steel timbering in its mines in the Ellsworth, Pa., Division. But steel timbering had certain minor applications in these mines as far back as 32 years ago. Yet both this early use of steel and the original use of it that was made by the present management of the mine in 1921, when it was employed as cross bars where roof conditions were known to be very bad, are of secondary significance as contrasted to the present use that is made of steel.

These instances of its early use are mentioned, not because they were very extensive but because of the valuable data they afford relating to the span of life in service that can be reasonably expected from steel under the prevailing conditions. Prior to the present increased use in the Ellsworth mines a series of experimental installations were made in order to provide information more especially as to the weights and depths of beams that are most desirable.

#### Corrosive Conditions Not Severe

The Ellsworth mines are in strata that only carry any considerable volume of water seasonally, and since they are well drained, the haulage roads are normally dry. However, in a few of the earlier installations just mentioned, where at times some water and a considerable amount of dampness come in

contact with the steel, there is little evidence that these conditions have accelerated deterioration. The steel in all these earlier installations is still in good condition. Corrosive conditions naturally differ in different mines, but are probably similar in the Ellsworth mines to those in a vast number of soft coal mines.

The most important present use of steel at the operations of Industrial Collieries Corporation is as beams replacing wood cross bars on haulage roads, and also in the butt entries up to two-thirds of the distance from the extreme end.

In these applications the practice has been to use either brick piers or wood legs as supports for the steel beams. Brick piers have been adopted as standard on a great deal of the main haulage roads, and the steel is also supported in some sections by bricked-up

sidewalls in a few places where they are necessary. Likewise in some places where the sidewall formation is sufficiently solid the steel has been hitched directly into rock or coal if of sufficient strength.

#### Extensive Experiments Started 10 Years Ago

The experiments that have been mentioned on which the present use of steel is chiefly based were instituted 10 years ago in 1930. In this study the premise was laid down at the outset that experience is necessarily the chief basis for devising sound practice in any timbering operation. As is well known, it is seldom practical to provide roof support, of a strength that would be sufficient in itself to carry the entire load of all the material above it, computed on the basis of its weight.



Left—Most extensive use is made of wood legs as supports for 10-in. steel cross beams 12 ft. long running 21 lb. per ft.



Right—Where the formation is strong enough, steel timbering similar to above is supported by hitching it into the rock or coal. Wood legs are also employed for cross bar supports in this haulage road

Hence, rather than attempting to make any close estimate of the depth and weight of beams that would be most desirable when this appraisal of steel timbering was undertaken, a rather wide selection of beams was experimented with. These experimental installations were made in all three mines in representative locations.

#### Sizes of Beams Installed

In the experimental installations in No. 51 and No. 52 mines, beams of 4 in., 6 in. and 10 in. depth were employed; the 4 in. and 6 in. beams replacing 10 ft. and 11 ft. cross bars, and the 6 in. and 10 in. beams replacing 12 ft. cross bars, or in wider spaces in such locations as haulage intersections. The heavier beams were also employed in places where the roof was known to be weak. In the 4 in. depth of beam, sections of as lightweight as 7½ lb. per foot were tried. These, it was found, had collapsed at the point of support. In the No. 51 and No. 52 mines it was found, however, that sections of this depth of 10 and 13 lb. weight were sufficiently strong in a considerable number of applications where roof conditions were relatively good and spans not too wide. In places in which overhead clearance space was at a premium the 4 in. beam was often found especially advantageous. The use of the lighter beams was found most advantageous, in such semi-permanent openings as butt entries. Here,

however, a line of division was also discovered in which it is far cheaper to use wood, due to its lesser cost and the relatively brief time that such timber is called on to serve. It was found that the sound, economical use of steel in a mine dovetailed in many instances with proper use, also, of wood.

In many areas in the No. 51 and No. 52 mines these experiments indicated the advisability of employing 6-in. beams of 15½ lb. Beams of this depth and weight are consistently used in places running to 12 ft. in width.

In the No. 58, Marianna, mine, however, where the roof formation is more unstable, similar experiments indicated

the desirability of the 15½-lb. 6-in. sections as just about the minimum strength allowable.

#### Importance of Proper Installation

The experimental use of the steel also brought out the importance of installing it in the proper manner. One factor that was found to be of prime importance was that the steel beams should be installed in an approximately level position. The rule has therefore been adopted as standard practice that all steel beams should be within a half-inch of level, and as nearly exactly level as practicable feasible. Likewise, it has been found that when wood legs are employed to support the steel it is most essential that the cut of the timber on which the steel rests should be close to right angles and flush with the steel. Since the wood legs are not sawed or hued, no straight edge is available for guiding a saw, and it is generally necessary to give the workmen who saw the timbering a certain amount of special instruction and practice before they can be depended on to saw each timber properly.

Where steel timbers are placed in brick walls they are spragged or fixed in place by being built into the wall. Where steel beams are set on timbers it is necessary to sprag them over the top with notched timber in order to keep the steel beam from tipping.

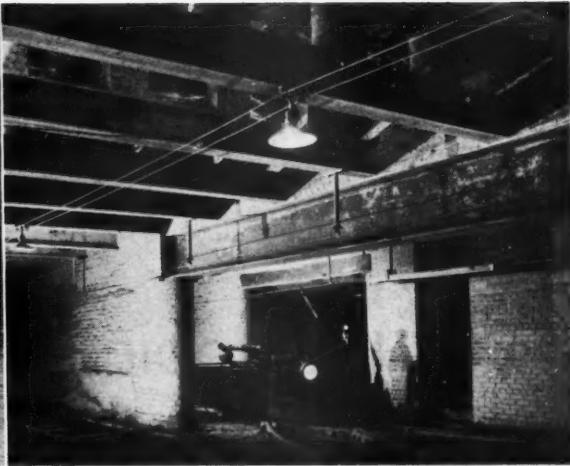
Proper use of the steel, it was determined, likewise called for adequate blocking to insure an even contact with the mine roof. This has been accomplished with ordinary wedges and blocks of wood in some cases. In other cases small brick piers resting on top of the beam are employed to contact the mine roof, and super-imposed tim-

These 8-in. beams, 12½ ft. long and running 23 to 27 lb. per ft., are supported on brick pillars in this main haulage road between two shafts





Steel beams 15 in. by 18 and 27 ft. long, 35 lb. per ft., support the roof over this unusually wide space



Heavy steel beams 12 in. by 18 ft. long 40 lb. per ft., and 24 in. by 14 in. by 34 ft. long 160 lb. per ft., are utilized near tipple shaft. Note brick piers employed as roof supports at top, resting on steel beams

ber work is used where the roof is especially high.

#### Use of Brick Piers

As has been indicated, brick piers are employed a great deal in main haulage roads, the reason being that permanence of construction in main haulage roads not only has a tendency to prevent recurrent roof cave-ins but also virtually eliminates loss of time that frequently results from the slowing up of operations that may accompany even the routine replacements of wood cross bars. Wood legs, however, are much cheaper than brick piers, give excellent service in relation to their cost, and replacement is relatively simple. Furthermore, the cost is but a fraction of the cost of replacing both cross bars and legs. When both cross bars and legs are of wood, experience has indicated that replacement is necessary every six to eight years.

#### Other Uses of Steel Supports

In No. 51 and No. 52 mines the types of beams most commonly in use are 10 and 13 lb. 4 in. wide-flange or H-sections and 15½ lb. 6 in. sections. In No. 58, Marianna, mine, on the other hand, use of steel beams is confined almost entirely to 15½ lb. 6 in. sections, the main exceptions being where long spans or bad roof conditions dictate 10 in. or larger sections. Steel beams are also used at the shaft bottoms, and as hitch timbers or dead logs in shafts. In this latter use it is installed about every 30 ft. We have frequently used 10-in. H-sections weighing up to 66 lb. per foot as dead logs.

The records show that during the past five years the No. 58 Marianna mine, one of the three main operations at Ellsworth, has on an average used about 600 steel beams each year. This contrasts in this particular mine with the use of nearly 30,000 pieces of wood timbering each year. In the No. 51 and No. 52 mines a considerably larger use of steel is made. The actual use of steel in all three of these mines is, however, considerably more important than is indicated by annual consumption figures. This is because the steel has a much longer service life than wood.

Experience at the No. 51 and No. 52 mines indicates that an average expectancy of six years service can be predicted for wood cross bars. By contrast, some of the older steel installations at Ellsworth indicate that at least 30 years life can be expected, and all indications point to the probability of 50 years life or longer. The present condition of the steel in the No. 58 Marianna mine, known to have been in service 32 years, definitely gives support to this prediction, and it is further substantiated by the condition of the steel that was installed in 1921 in more representative applications.

#### New Kennecott-Consolidated Coppermines Agreement

Consolidated Coppermines Corp., through an amendment of the settlement and operating contracts with Kennecott Copper Corp., has completed arrangements for the handling by the latter of a larger tonnage of ore at a lower cost per ton, Boudinot Atterbury, president of Consolidated Coppermines, has announced in a letter to shareholders.

It was stated that the tonnage limit per operating day has been increased from 6,000 tons to 8,000 tons, effective forthwith, and to 9,000 tons beginning August 1, 1940, with provisions for further increases under certain conditions.

From October 1, 1940, there is to be a reduction of 8 cents per ton in the basic charges for freight and milling, along with other favorable modifications of the contract, notably in the provisions governing the resumption of operations after a shutdown.

Mr. Atterbury stressed that it is

not correct to infer a fully corresponding increase in the output of copper. There is a necessary time lag in the development of the mine to the higher production level, and market conditions might not justify capacity operations. Further, the copper content of the ore in recent years has been running somewhat above the average grade of the mine as a whole.

The period covered by the agreement has been extended from December 31, 1967, to December 31, 1975.

In commenting upon the completion of the agreement, Mr. Atterbury stated that it makes unnecessary at this time the financing which had been contemplated for the construction of the company's own concentrator, and is evidence of the spirit of good will prevailing between Kennecott Copper Corp. and Consolidated.

In return for these concessions, Kennecott receives the right to extend the "Liberty Pit" of its Nevada subsidiary into ground held by Coppermines. At the same time mining rights of the two companies along the common boundaries were clarified.

Drilling in a stope of the Balmat zinc mine of St. Joseph Lead Co. in St. Lawrence County, N. Y. Liberal use of water in drilling and wetting down the muck here greatly reduced the dust count

# The Viewpoint of an Employer Towards INDUSTRIAL HYGIENE\*



ALTHOUGH probably most companies and individuals will agree that improvement in industrial hygiene is advisable from an altruistic angle, there are many who have not had the opportunity of proving that a betterment will usually result in lower operating costs, and therefore an effective expenditure for improving working conditions is a good investment from the dollar and cents angle.

I will briefly outline the experience of the St. Joseph Lead Company, which is one of the oldest and largest mining and smelting companies in the United States. I think that most of you will be convinced that we have not been unduly influenced by legal or paternalistic viewpoints, also that we have been well repaid in "dollars" for our actions. Conditions are, of course, different in practically every plant, locality and industry, and therefore the results that I give should not be considered as ap-

## ● *Cites Specific Examples of Important Savings Effectuated, Over and Above the Indirect Benefits Viewed from the Human Welfare Standpoint*

By ANDREW FLETCHER  
Vice President  
St. Joseph Lead Co.

plicable to individual problems, but only from the broad viewpoint of indicating that improved working conditions are beneficial to employee as well as employer.

Twenty years ago, before there were many laws covering industrial hygiene, the St. Joseph Lead Company realized that, in order to prevent its best men from entering possibly more attractive fields, it was necessary to have the best possible living and working conditions, so that a man could satisfactorily raise his family by sending his children to good schools and maintaining his and

their health. From the following, in which the cost of labor turnover is estimated, it can readily be appreciated that we were not solely influenced by any legal, paternalistic or altruistic angle, but actually by a practical money-making viewpoint.

### **Labor Turnover Record and Costs**

In 1918 our labor turnover was 250 percent per year; in other words, it was necessary to employ 250 new men each year to keep 100 on the job. Therefore, to maintain our organiza-

\* Presented at the Annual Meeting of Air Hygiene Foundation.

tion of some 2,500 men, we had to hire 6,250 men per year.

Assuming that 10 days was required to "break in" a new man, such as a hand loader, which was the occupation at which most new men were employed, and assuming the value received from a new employee to be about 20 percent at the beginning of his employment and 80 percent at the end, or an average of 50 percent over the entire period, then using the 1919 average underground labor rate of \$4.12 per shift, the direct cost of replacing one man was \$20.60 ( $.50 \times 10 \times \$4.12$ ). The minimum direct cost of our 1919 labor turnover was therefore approximately \$125,000 per year ( $6,250 \times \$20.60$ ), which is the minimum figure, as it is difficult to estimate the indirect costs, such as additional supervision, increased accident hazard, decreased efficiency among older employees because of the necessity of giving attention to new employees, etc., but it is probably safe to say that the indirect equaled the direct cost; therefore, the total cost of the labor turnover was \$250,000 per year. I might add that under present-day conditions, where machinery and brain work is necessary, instead of costing about \$21 per man, the figure is nearer \$100.

By 1926 labor turnover had been reduced from 250 percent to 40 percent per year, and by 1933 to 5 percent. Last year it about 2 percent—just compare this figure with the condition existing 20 years ago.

#### Factors Behind Improved Turnover

The actual dollar and cents saving indicated by the above was in part due to the following.

By asking our employees why they were quitting we learned of numerous reasons, such as "Poor living conditions," "poor schools," "no churches of their faith," "no facilities for recreation," "working conditions unhealthy and dangerous," "wages too low," "unfair treatment by foremen," etc.

Before taking any definite steps to rectify these apparent justifiable complaints, we made a study of our employment, wages, hours, working conditions, and also the training, safety, health and living, plus economic security. As a result of our investigations, we then: (1) Constructed an expensive water system, (2) Permitted communities to raise our taxes, so that better schools could be provided, and (3) Improved our company houses.

#### Physical Examinations

These improvements were completed over a period of a few years and showed immediate results, but the betterment was not obtained merely through spending money. For example, a system of physical entrance examinations was instituted in order to avoid placing men on jobs for which they were physically unfit. This practice was and is most beneficial for men and company alike, as unknown physical defects have been found and also limitations, such as a weak heart, etc. I wish to emphasize definitely the mutual benefit of initial physical examinations, as well as current ones made every two or three years. If a current examination shows that an employee cannot carry on with his job, he is shifted to a new position and he is paid the going rate for the new job, even if it is lower than his former basis. If no job is available, or if he cannot work with safety to himself and his fellow employees, he is then pensioned. I know of no case where the employee was discharged because of his physical condition.

Our southeast Missouri plants were and are entirely dependent upon the local labor supply—the school boys of today are our future employees. A check-up on the school children revealed 80 percent under-nourished, and a study showed it was due to lack of milk. That was overcome in 1920 by starting a pasteurizing plant. Milk was sold at a low cost, and given free in some instances. Within five years the 80 percent figure of under-nourished children was reduced to 17 percent. Today the company maintains a milk herd of approximately 300 dairy cows; in addition to operating a dairy, we have a plant where ice cream and other milk products are turned out, and also six company stores, which endeavor to maintain the lowest possible cost of living in the district. Through selling to other stores in the district at the same wholesale prices as those on which the retail sales are based, other private stores in the area have been able to show profits without taking advantage of the communities.

#### Combating the Lead Hazard

Additional mutually satisfactory improvements were made in combating the lead hazard. At our smelter there were 64 lead poisoning cases in 1920 in an organization of 400 employees. A study was made of the hazard, and as a result semi-annual general physical examinations and weekly physical in-

spections were instituted, and a good change-room and cafeteria were provided. Arrangements were made for employees to wear work clothing provided and laundered by the company, and all employees were advised as to the importance of personal cleanliness in combating the lead hazard. A resident doctor not only examined the men but also made periodic plant inspections to check conditions that might adversely affect health. As the result of careful supervision, lead poisoning is no longer a serious problem.

Our miners could not obtain life insurance coverage, except at prohibitive rates, so a group life insurance plan was instituted, whereby each employee was given up to a maximum of \$2,000 insurance at no cost to himself, and was permitted to buy \$2,000 more at a low rate. A pension plan was instituted and has been revised from time to time to meet changing conditions.

#### Efficient Safety Department Organized

It was also soon realized that, in addition to saving money through reducing labor turnover, it would be mutually beneficial to develop an efficient and competent safety department. The "money" results secured are indicated by the following statistics:

Frequency, or number of accidents per 1,000 shifts worked has been reduced from .90 to .25.

Severity, or number of shifts lost because of accidents per 1,000 shifts worked, has been reduced from 12 to 5.

Cost of accidents per \$100 of payroll has been reduced from \$2.25 to \$1.25. A saving of \$1 per \$100 on a payroll of approximately \$4,000,000 means a saving of \$40,000 per year.

#### Making the Job Interesting

Another way that we have found for making money as well as making our men better satisfied is by always endeavoring to make each individual job as "interesting" as possible. We have found that the American employee does very much better and more efficient work if the job is interesting and requires some "brain" work. Along this line we have endeavored to eliminate as much hard manual work as possible—hand shoveling in the mines has been eliminated wherever possible through the use of mechanical shovels, drags, chutes, etc.

It is, of course, not easy to make changes in operating procedure, and often one hears, "My father worked this way, why can't I?" even though

the management is confident that the adoption of certain improvements would be mutually beneficial. We have found that changes are more easily accepted if they are related to conditions uppermost in the minds of employes. For example, the recent silicosis "racket" made our employes dust conscious.

#### Lessening the Dust

It was only a relatively few years ago that, although we theoretically drilled wet, actually a great portion of the drilling was dry, as the men preferred to work dry, and we were not convinced that dry drilling was hazardous. Although, as previously indicated, I cannot subscribe to the theory that all dusts are hazardous until proven harmless, I do know that working in dust is unpleasant, even if it is not medically dangerous, and I was and am convinced that with just a little thought and with relatively a small money expenditure, the amount of dust can be enormously reduced. The easiest way to reduce dust is to take dust samples of representative operations at fixed intervals of time, even if only once a month; place the results on a chart, and send it to the executive office of the company. This procedure, which costs practically nothing, will result in somebody giving the matter of lessening the dust a little thought.

At our Balmat Division in New York State, we reduced the dust, for example, in stoping operations from 40,000,000 to less than 10,000,000 per cubic foot merely by insisting on wet drilling, including collaring the hole wet, wetting down before blasting and mucking, and increasing the ventilation by use of a fan. With the exception of the fan cost, the expense was negligible, and our division manager estimates that he would require at the present time 8 or 10 additional men per day in a total force of 185 to maintain the present production if he did not have a fan.

In the sintering operation at our Josephtown zinc smelter, a dust prevention and recovery plant was installed at a cost of approximately \$26,000. Disregarding for the moment the greatly improved working conditions and employe satisfaction, the minimum saving per year is over \$5,000, and therefore the installation will pay for itself in less than six years. The following example of saving is even more satisfactory. At the same division some \$13,000 was expended in improving working conditions in the furnace basement, and it is estimated that



Early introduction of machine loading at St. Joe's southeastern Missouri lead mines made the job more interesting and pleasant for miners in that district

the recovery in the furnaces has been improved by over 1 percent. This saving seems very small, but it is one which will more than pay for the operating cost of the installation, refund the entire \$13,000 investment in one year, and show a profit of about \$13,000 each year thereafter.

#### Importance of Current Records in Meeting Claims

Before I close there is another point that I wish to emphasize, and that is if a company is sincerely studying and overcoming the problems of industrial hygiene, and unjust claims for alleged injury are made before compensation boards or in the courts, the claim or claims should be energetically fought. I feel in this phase of the problem I can certainly speak with considerable experience, as a few years ago our company was faced with between 450 and 500 silicosis cases, even though we knew that it was impossible to incur silicosis in our southeast Missouri operations because there was practically no free silica in the ore and an examination of men who had worked

upwards of 25 years on dry drills showed no symptoms of silicosis. Although I am glad to say that we satisfactorily disposed of all the cases, I must admit that we were somewhat handicapped in our defense, and were forced to make rather heavy expenditures, as the data covering our working conditions had to be obtained after the cases were filed.

Therefore, I strongly suggest that progressive companies currently obtain information as to dust, fumes, etc., under prevailing working conditions. It is even advisable to have these data prepared by a disinterested and recognized authority in the medical or engineering field of industrial health, because if the information is secured by the company's own employes it is often disregarded by compensation committees or the courts on the basis that it is prejudiced. Also, this is frequently the case when the data have been obtained by so-called "experts" after cases have been filed, and when it is necessary to prove that the conditions then found were the same as those prevailing before or at the time of the alleged accident.

#### Geologist, Engineer and Promoter

Three men—a geologist, a mining engineer, and a mining promoter—were going hunting. They were all dressed up with red hats, checked shirts, choke-bore breeches, yaller boots and shiny rifles.

When they arrived at a point deep in the woods they came upon a series

of bear tracks. The geologist immediately started back-tracking in order to find out where the bear came from. The mining engineer started following the tracks ahead to find out where the bear had gone; but the mining promoter started back on the road to town to bring a truck to carry out the carcass of the bear after it was shot.—*Goldfield News*.

# Standardization Simplifies Use of ANTIFRICTION BEARINGS

By E. C. REITHER  
Manager, Mine Car Division  
The Timken Roller Bearing Company

**I**N SPECIFYING the type of bearings for use in mine equipment—especially mine cars—the first question is: Shall specifications include plain bearings or antifriction bearings? The initial cost of plain bearings is less, but from there on the argument for plain bearings comes to a halt.

Antifriction bearings, while slightly more expensive initially, have sufficient advantages to compensate for their added cost in a short time. There are cases on record where antifriction bearings brought the production cost per ton of coal down far enough to equalize their added cost in less than three years.

Because it has been effectively demonstrated that antifriction bearings will reduce production costs, operators taking advantage of every opportunity to cut costs have rapidly included such bearings as an accepted feature of car construction. As a matter of fact, the question of their suitability for service has largely given way to the one of how they can be most effectively mounted to meet all requirements of the service.

## Standardization Problem Raised

The extensive use of antifriction bearings has in itself created a standardization problem. Mine operating conditions being what they are, it is necessary that bearing assemblies be standardized so that extra parts may be carried in stock and that all parts be interchangeable. This latter requirement is especially significant since the application of antifriction bearings has made the wheel the limiting factor in the life of running gear assembly rather than the life of the axle as is the case when cars are plain bearing equipped. The importance of interchangeability is evident from the average life of antifriction bearings. For instance, approximately 2,500,000 Timken bearings have been applied to mine cars

during the last 19 years, and the total number of these bearings that have failed from all causes is less than  $\frac{1}{4}$  of 1 percent.

In the development of bearing assemblies considerable attention was given to standardized parts so that all parts—bearings, dust collars and adjusting nuts—would be interchangeable on cars of the same capacity rating and axle diameter, irrespective of make. Today standard parts are available on 13 axle diameters ranging from  $1\frac{1}{8}$  in. to  $3\frac{1}{2}$  in. and on approximately the same number of capacity variations ranging from 3,000 lb. to 40,000 lb.

Figure 1 shows the most popular mounting developed for the loose wheel type of car. The standardized parts include two bearing assemblies, a dust collar, an adjusting nut, washer and cotter pin. The only special fixture required for assembling is a small press used to insert the outer bearing races into the wheel. The steps to follow,

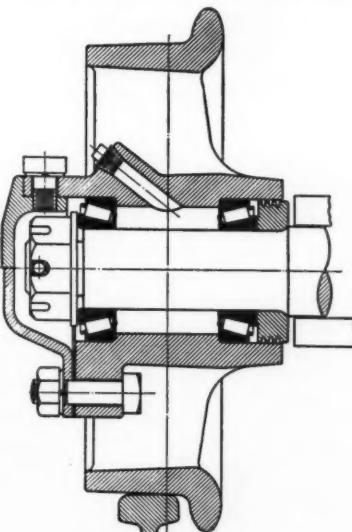


Fig. 1. Mounting developed for loose wheel type of car

after the outer bearing races are pressed into the hub and the dust collar (which locates the inner bearing cone) is shrunk on the axle, include: (1) slip the inner bearing on the axle; (2) slip on the wheel; (3) add the outer cone; (4) obtain the proper adjustment with lock washer, nut and cotter pin. In this mounting, to replace a new wheel into which cups have been pressed, it

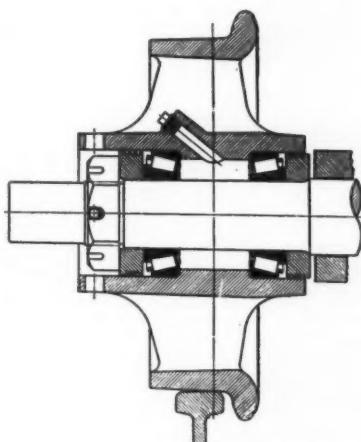


Fig. 2. Variation of mounting developed for cars with loose wheels and extended axles

is only necessary to remove the cotter pin, adjusting nut and washer and the outer bearing cone.

For cars with loose wheels and extended axles a variation of this type of mounting has been developed. This is shown in Figure 2. In this mounting two dust collars are used—the inner one is shrunk on the axle as in the illustration, and the outer one is given a light fit. The washer has not been included in this design; the nut bears directly on the outer dust collar.

In all standardized assemblies there is no need for complicated machinery or fixtures or expert mechanics to remove or install various parts.



Dragline dredge of De Lamar Placers. Equipped with placer jigs it has a capacity of 3,000 yds.

## Recent Developments in IDAHO DREDGING

**D**REDGING in Idaho has not changed recently except as to a number of new dragline dredge installations and various improvements in the methods of saving gold, not only on the new boats but on some of the bucket type dredges that have been operating with sluice boxes and riffles. There are three bucket type dredges and one dragline dredge that have changed from sluice boxes and riffles to placer jigs for improving their gold recovery.

The dragline installations have varied from small yardage plants to large well built machines. Some have closed down after a short run, due either to poor advance judgment as to the value of the ground or to faulty operation, whereas others are operating at a good profit. Some operators have been fortunate in doing well on ground where very little testing was done before building a dredge, while others with the same amount of testing often find that their values are far below what they expected, or rock conditions are too severe.

### Improvements by De Lamar Dragline

All the dragline dredges are using riffles, so far as I know, for saving gold with the exception of the De Lamar Placers. This plant, operating in the Silver City district of Idaho, is now running in its third year, one year with riffles and a low recovery, and two years with jigs with a high recovery. The improvements made on this operation are as follows:

The sluice boxes, riffles and distributor were discarded. A new distributor patterned after the idea of the Jones sampler was installed. The bottom of the distributor is 28 in. in width, and the divisions running crosswise are 6 in. in width and 6 in. in height. Every other pocket between

### ● Trend to Greater Use of Jigs Is Noticeable—Operation Described in Detail. No Suitable Boulder Discharge for Dragline Bucket Yet Developed

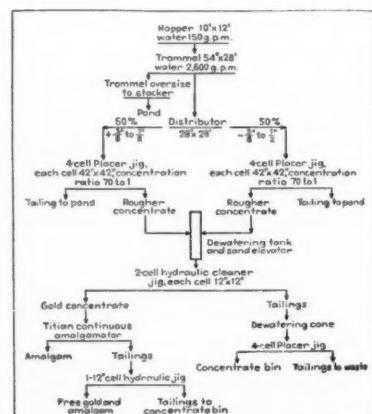
the divisions discharges to one side of the screen and the others to the other side. One half of the water, fines and gravel is equally discharged to each side of the screen and further distributed equally into each cell of the jigs. The even distribution is necessary as the jigs are more efficient with an even feed, allowing each cell to do its maximum amount of work. It gives the entire plant a larger daily capacity.

### Jigging Operation Described

The jig cells (Pan American) are 42 in. square, each cell having a rated capacity of approximately 30 cu. yds. per hour. Since they are placed in tandem, the rated capacity of each single cell is 15 cu. yds. per hour. If the screened gravel results in 50 percent minus material, then each group of two cells can treat 60 cu. yds. of the original gravel per hour. The stroke of the jigs is set at about 1 1/4 in. with a speed of 120 per minute. The jig bed is made up of 3/16-in. and 1/4-in. steel shot and the balance of the bed consists of coarse concentrates which build up even with the tail gates and discharge automatically as

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Boise, Idaho

more coarse concentrates are formed. These coarse concentrates contain no values. From 40 to 80 percent of the gravel excavated passes over the jig bed, and the balance or the oversize from the screen passes out over the



Flowsheet of De Lamar plant

stacker. The ratio of concentration of these rougher jigs has not been definitely determined, but it is believed to be approximately 70 to 1. There is 1 cu. yd. of rough concentrates to every 70 cu. yds. of gravel that goes over the jig bed. The objective is to make a rough concentrate that will carry not only all the free gold, but also any other form of concentrates containing values in gold and silver that are not free. Generally these values are in fines and sulphides—losses from the early operation of concentrating mills which have been washed down and deposited along the flats for miles below the mills.

The rough concentrates are dewatered and discharged into a two-cell hydraulic jig. This machine makes a gold concentrate which runs into a revolving Titan amalgamator, the tailings from which run into a safety jig and then to the concentrate bin. The tailings from the two-cell hydraulic jig, minus the free gold, contain the rest of the bulk of the concentrates. These tailings, consisting of concentrates and coarse sands, are delivered into another dewaterer. The dewatered sands are divided into two equal parts. Each one of these parts is delivered into a four-cell concentrate jig of the Pan American type. The jig is of the same type as the large rougher jigs, but has a speed of about 240 strokes per minute. The length of stroke is adjustable and is set to make a clean concentrate, but averages about 1 in. Around 15 gallons of water is added per minute, and the result is a very clean concentrate. At the present time the two concentrate jigs are producing about three-fourths of a ton of concentrate per day. The values in the concentrates vary from \$40 per ton to much higher values.

The flow sheet of the De Lamar



Tailings stacked in valley behind De Lamar dragline

Placers boat is about the same as that used on the Fisher and Baumhoff bucket dredge at Centerville, Idaho, except that their dredge has twice the number of rougher jigs, and they do not have the four-cell concentrate jigs. Their concentrates, after the free gold has been amalgamated, do not carry enough values to warrant saving them.

#### Better Recovery of Amalgam By Jigs

The two above mentioned properties both have gravels that contain considerable mercury and amalgam. The experience of both these operations is that old amalgam is more difficult to save on riffles than is free gold. In fact neither of these properties was able to make a satisfactory saving until jigs were installed in place of riffles. It is found that amalgamation is quite complete in the amalgamator. A one-cell hydraulic jig is installed at the discharge end of the amalgamator as an index to determine if there are any losses of the amalgam or free gold.

It is the experience that some amalgam does break away from the plates, but scarcely any free gold gets through. This small amount of amalgam that gets through is saved by the emergency jig. Two of Fisher and Baumhoff dredges equipped with jigs do not use any amalgamator but are using mats and riffles to catch the gold directly from the rougher jigs and dewaterer.

The writer feels that jigs are not necessary on every job, but are imperative where there is a high percentage of sands, rusty gold, or where gravels have been fouled by the operation of hydraulic mining or of concentrating mills. A bucket dredge working in ground where the fines are high will have a much larger capacity with the use of jigs than with sluice boxes and riffles and will effect higher recoveries.

The following are some points that might be of interest to dredge operators and manufacturers of dredging equipment.

#### No Satisfactory Boulder Discharge for Dragline

A ready boulder discharge has been worked out in the past for bucket line dredges, but so far in Idaho, the dragline boats have not found a satisfactory method to handle boulders that get into the pocket. The best way is to avoid getting them in, and if they do the pocket should be designed with a smooth roll lip on the front edge so that the dragline operator can readily remove them from the pocket and into the pond in front of the boat.

Fisher and Baumhoff are using rubber capped riffles wherever riffles are used, and find that they outwear the ordinary angle iron riffles. Perhaps the cheapest form and the light-



Test pitting with caissons for possible dredging ground

est riffle to handle is to make them of wood and cap the top with  $\frac{1}{4}$ -in. soft rubber, allowing the rubber to overlap the front edge of the riffle about  $\frac{1}{4}$  in. The only wear that I noticed on such riffles was in the wood underneath the rubber where there had been a boil in the flow. No doubt the standard all-rubber riffle might be best, but these are somewhat costlier and heavier.

There appears to be a preference in using a bucket line dewaterer rather than the drag angle iron type dewaterer. I feel that the drag dewaterer does a somewhat better job, requires less room, looks better, but might cost more for repair parts.

#### Stacker Belt Fasteners

Changes are being made in stacker belt fasteners, and although this is perhaps a minor thing, yet by failure of one fastener a new belt can be ruined. Several of the dredges are using the bolted type Flexo fastener. Holes are bored through a template. Bolts about  $\frac{1}{16}$  in. larger than the usual rivet size are inserted through a steel plate, screwed down tight with lock nuts. There are about one-third as many bolt holes through the belt as there would be when rivets are used, and enough rubber is left between the holes to eliminate tearing and shearing trouble that arises with riveted fasteners. The use of a template assures that the belt is fastened together in a true line.

#### Heating Dredges

The problem of heating dredges in Idaho has caused much trouble. Some of the newer ones are using a factory type built-in steam radiator with a three speed fan behind it. I believe this has been more satisfactory than the usual method of using hundreds of feet of steam pipe. If the stacker is well housed, a large radiator with a fan at the foot of the stacker keeps

the stacker clear of ice formation. However, on long stackers it appears necessary to have a radiator near the upper end of the stacker. Some boats are using slack by firing with a mechanical stoker, which has proved quite satisfactory.

#### Advances in Dragline Bucket Design

One of the most important changes made in Idaho dragline operations has been the development of a suitable bucket. Three years ago every one was using the regular contractor bucket with some extra reinforcement, either to give it more weight or to make it a little stronger. The wear underneath water is far more severe than where the gravel is dry. Operators have been making changes and additions so that now some of the bucket manufacturers have developed a bucket that will stand the wear such a bucket must undergo. With this in mind, operators now plan on buying a dragline of  $\frac{1}{2}$ -yd. larger capacity than the bucket they intend to use. This is to take care of the extra weight that is now added to the new gold bucket. Bear in mind that the principal consideration is to use a bucket that will save the greatest amount of gold from bed rock. In this connection the use of the proper wire rope for dragline use and winch use for the bucket type dredges appears to have drawn considerable attention. On account of being used in water it is not desirable to use any hemp cored rope. An 8 by 25 wire rope with a steel center seems to do better than the 6 by 19 strand wire rope with a steel core. The flattened strand rope seems to stand more abrasive wear than the round strand. All the rope companies have many brands and types suited for different purposes, and the best rope is none too good.

The receiving pockets on a dragline boat give considerable trouble wherever they are welded, as the weld

breaks and becomes loose from the constant dropping of boulders and gravel. The best designed pocket that has come to my attention has a  $\frac{3}{4}$ -in. special alloy abrasive steel bottom over the wood filler. After four months of steady use in material containing a lot of boulders, it shows no sign of wear or breakage. It might be well for some of the equipment companies to bring out a rubber lined pocket to answer this purpose.

In conclusion, an interesting possibility for Idaho dredging is the erection of two really large dredges where the gravel is considered deep. A drilling campaign was carried on last summer in central Idaho where the depth of the gravel to bed rock averages about 85 feet. The yardages are very large and prospects are favorable for the erection of at least one 13-cu.-ft. dredge during 1940.

#### Dun Glen Resumes Operation

The Dun Glen mine of Hanna Coal Company resumed operations in mid-February following a three-month shutdown as a result of the fire which completely destroyed the tipple on November 5. Finishing touches were put on the new tipple early in February, and 500 employees are now back at work at the operation.

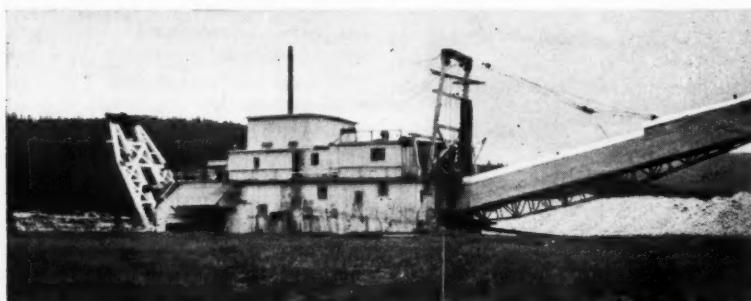
The work of building the new tipple started within a few hours of the fire last November, and the utmost speed was urged in order to have the mine operating again as soon as possible. Construction work was double shifted to speed up completion of the tipple, to provide employment for the men thrown out of work and to fill the orders lost when the mine ceased to operate.

#### Hazard Operators Reelected

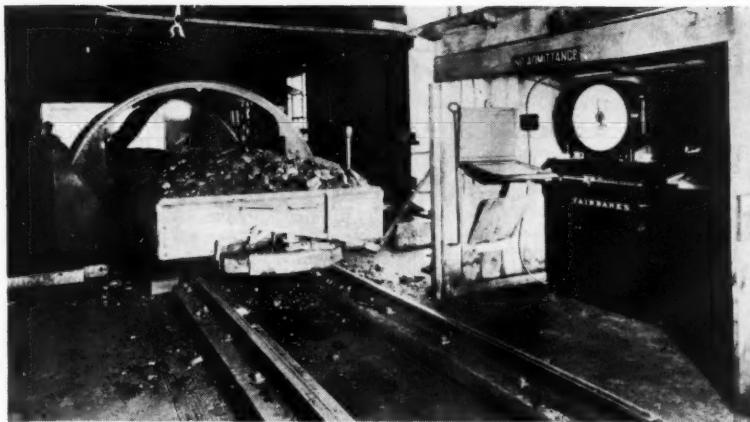
The annual meeting of the Hazard Coal Operators Association was held January 26 at the Lafayette Hotel in Lexington, Ky. Following the business session, where reports of committees were presented and accomplishments of the association during the previous year outlined, the meeting elected the following board of directors: Messrs. Dayton, Davis, Gum, Medaris, Miller, Mitchell, Seinknecht, Trosper and J. E. Johnson, Jr.

Officers of the association were then reelected by the board as follows: George P. Fitz of Hazard, president; W. E. Pritchard, vice president, and A. E. Silcott, secretary-treasurer.

Speakers at the banquet in the evening included John F. Daniel, chief of the Kentucky Department of Mines, who outlined general problems pertaining to safety in mining.



Plant of Warren Dredging Co. near Warren, Idaho. Nearby is a similar operation by Baumhoff-Fisher Co. Both enterprises are owned by E. T. Fisher and employ about 50 men



Modern scales with automatic printing device speed up operations, eliminate guess work on car weights, and provide check against errors in transposing figures when copying weights on mine sheets

## Weighing and Recording Mine Output

THE trend toward larger mine cars and stepped-up production tonnage has brought about a need for modern weighing equipment. This trend has emphasized the importance of scales that will operate quickly, accurately, and which are trouble free, so that there will be no production interruptions due to breakdowns.

In keeping with today's requirements, engineers have developed weighing equipment that will meet the most exacting requirements of mining operations. Automatic scales have been designed and built specifically to provide for better control of mine output.

The method of weighing mine output varies, but the accepted methods can be classified in three general ways: first, dumping the coal from the cars into a hopper scale commonly referred to as a basket or pan scale; second, weighing the loaded cars separately in stationary position or when in motion; and third, weighing the cars coupled entrain while in motion. The fastest method is weighing cars entrain while in motion and the most accurate method is weighing the coal in hoppers. However, this is a matter of opinion and much can be said for either method.

Scales have been developed for these three operations, and in designing the lever systems, particular attention was paid to shock loading to which mine scales are subjected. Certain types of mine scales incorporate design features which adequately protect the bearings from wear and insure continued sensi-

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tivity, which is the first requisite of good scale construction. The scales are also adapted for installation in existing layouts, thereby keeping structural changes to the tipple at a minimum.

The problem of higher wages and regulated selling prices has necessitated the reduction of operating expenses wherever possible and this can be accomplished with dial and printomatic attachment on mine scales.

This attachment replaces the conventional hand-operated weighbeam and consists of a dial of the cabinet type with a large reading chart and a tare beam. The printing device is attached to the dial and is so arranged that it will print the weight indicated on the chart on a ticket or a continuous roll tape. The full weight is printed in digits in large type so that there is no necessity for mental calculations to obtain the correct weight.

In most mine installations the method employed is that of printing the weights in duplicate on roll tape. The original tape is fed outside the machine where it is immediately accessible to the weighman, and the duplicate tape winds in a compact roll inside the machine so that it may be retained for office records. A bank of keys representing numbers or symbols similar to an adding machine can be

attached to the printer for setting up check numbers or other identification, and these will then be printed on the tape in the same operation which records each individual weight.

Where the method employed is that of weighing the coal in mine cars as they pass over a platform scale either coupled in train or singly, the printing of the weight is entirely automatic without any manual operation other than setting up the designating check numbers when desired. However, in order to weigh the coal in mine cars in stationary position on a platform scale or after it is dumped into a hopper scale, it is necessary to operate a conveniently located push button to print the weight.

In addition to speeding up operation, this specially designed weighing equipment eliminates all guess work or divided opinion as to the correctness of the weight and also provides an absolute check against errors due to transposing figures when copying weights on mine sheets.

One of the main purposes of all modern improvements in machinery is to increase production without increasing the cost of labor, or to produce the same output with less labor cost. It is for this reason that many mine operators are installing a modern method of weighing.

# Extension of RECIPROCAL TRADE

## AGREEMENTS ACT



Statement of  
**JULIAN D. CONOVER**  
Secretary  
American Mining Congress

THE American Mining Congress, representing the various branches of the mining industry of the United States, has given careful consideration to the question now before your committee, of extending the authority of the President under Section 350 of the Tariff Act of 1930, as amended—this section being commonly known as the Reciprocal Trade Agreements Act of 1934.

The following resolution, as unanimously adopted at our 42nd Annual Meeting, January 18, 1940, sets forth the views of the mining industry on this important question of public policy:

"We do not favor the extension of the Reciprocal Trade Agreements Act unless it is amended to eliminate certain defects which experience has developed:

"1. The policy of gratuitous extension of concessions to nearly all countries does not result in benefits to the United States equivalent to its sacrifices and should be abandoned.

"2. The Trade Agreements Committee has not given each commodity the careful, complete and expert consideration it deserves, and has inflicted unduly severe burdens on established domestic industries.

"3. Administrators of the act have not applied the treaty provisions permitting modification where exchange rates are seriously altered.

"4. They have not utilized clauses in the treaties providing for withdrawal of specific commodities when countries outside a given pact reap the principal benefits at the expense of our domestic industries.

### ● Statements Made Before the Ways and Means Committee, January 24, 1940

"5. The practical application of the act has not demonstrated a feasible method to provide tariff increases when necessitated by changed domestic conditions.

"6. Reciprocal trade agreements are in fact treaties and should be ratified by the Senate."

It should be emphasized that the mining industry is not opposed to suitable measures for encouraging foreign trade, including agreements with other countries which produce mutual benefits and in which damage is not done to the public interest by crippling or destroying established domestic industries and employment, nor lowering American standards of living. However, more than five years of experience under the existing trade agreement policy have brought out important defects in the law which should be remedied if the act is now to be extended.

Let us consider each of these as outlined in our resolution.

#### (I) Extension of Concessions to Other Countries

The existing law requires that reductions in our import tariff rates or other concessions to any country with whom a trade agreement is concluded shall apply immediately and automatically to all other countries, except such few as are charged with discriminating against our foreign trade. The concessions so granted are extended not merely to the 23 nations with whom we had pre-existing most-favored-nation commercial treaties, but to substantially all other nations on the face of the globe.

Although numerous tabulations have been made to show comparative imports and exports from trade-agreement and non-trade-agreement countries, we know of none now available which show the specific effect of extending concessions made to single countries to the wide world in other words, which show the increase in our imports of commodities on which

duties have been lowered, from countries other than that to which we granted such concessions. Judging from experience within our own field, we believe such figures if compiled would reveal that a large proportion of the increased imports of such commodities are coming from countries other than the concessionaire, who have received the benefit of the reduced duties as a free gift without any direct reciprocal concession on their part.

An illustration exists in the cases of zinc and cadmium, products of the mining industry on which the duties were lowered in the trade agreement with Canada, effective January 1, 1939. The proportion of imports of these commodities from Canada and from other sources, compiled from the statistics of the U. S. Bureau of Foreign and Domestic Commerce, in the 11 months following the effective date of the treaty, were as follows:

	ZINC	Percent
Canada	11.3	
Mexico	62.6	
Belgium	9.1	
Peru	8.9	
Norway	2.8	
Argentina	2.2	
France	1.7	
Poland	1.6	

	CADMUM	Percent
Canada	7.9	
Belgium	70.9	
Netherlands	10.1	
Italy	8.7	
Norway	1.8	
Poland	0.6	

It is plain that in these cases, by far the major benefits of the concessions originally made to Canada were enjoyed by Mexico, Belgium, and other countries from whom no corresponding concessions were received in return.

So far as the mining industry is concerned, we can state definitely that the injuries done to our domestic industry have far outweighed any benefits re-

ceived from the countries to which concessions have been made. We believe that a thorough quantitative analysis of the results of the unconditional most-favored-nation policy would demonstrate a net loss to the United States.

We urge that the language of the existing law under which "the proclaimed duties and other import restrictions shall apply to articles the growth, produce, or manufacture of all foreign countries" be amended to provide as nearly as possible the negotiation of trade treaties on a bilateral or truly reciprocal basis.

In the event pre-existing most-favored-nation treaties should make this impossible of immediate application, we submit that there should be specific language in the act which will require the President, through the proper agency, to make concessions on any commodity *only to that country which constitutes the principal source of imports*. This represents nothing more than the announced and oft-repeated policy (unfortunately not observed in actual practice) of those charged with administering the present act, and should be specifically required by law.

## (2) Failure to Give Consideration to All Factors

The claim is repeatedly made that scrupulous care is taken to ascertain all relevant facts bearing upon any proposed reduction in our tariff rates, to the end that no action will be taken which, in the language of the Secretary of State before this committee, would "be prejudicial to any established branch of production, in agriculture, in mining, or in manufacturing industry." We regret to state that our experience fails notably to support this contention.

Recently, in a trade agreement with Venezuela, a 50 percent reduction was made in the import excise tax on crude petroleum, to the detriment of our great bituminous and anthracite coal industries and over their protest as well as the protests of oil producers. Correspondence between the State Department and representatives of domestic producers, which has been referred to in recent testimony before your committee, pointed out a number of factors upon which the Trade Agreements Committee could readily have secured full information, yet on which it had apparently been misinformed or had failed to grasp their significance. Further, no opportunity was given for an open discussion with anyone in author-

## MINING WITNESSES AT SENATE HEARING

At hearings held before the Senate Finance Committee, March 1, the American Mining Congress through its Secretary urged that the existing Trade Agreements Act be amended in the following three respects:

1. Make the law contain a definite requirement limiting our concessions on any commodity to that country which constitutes the principal source of imports; and, in the event imports from other countries exceed those from the signatory country, to withdraw such concessions.
2. Incorporate definite provisions in the existing act to make effective the "escape clauses" found in the various treaties, and to provide means for remedying damage to established domestic industries.
3. Require Senate ratification of all agreements before they become effective.

Howard J. Young, as President of the American Zinc Institute, and Evan Just, Secretary, Tri-State Zinc and Lead Ore Producers Association, also appeared before the Committee in support of the amendments proposed by the American Mining Congress.

All three mining spokesmen charged that the existing Act's failure to limit United States concessions on any commodity to the country constituting the principal source of imports has resulted in serious damage to the domestic mining industries.

Particular emphasis was laid on the damage done the domestic zinc industry by the reduction in duty effected in the second Canadian agreement. Industry witnesses conclusively demonstrated to the Senate Committee that major benefits of concessions made to Canada were enjoyed by Mexico, Peru, Belgium, Netherlands, Italy, and other countries from whom no corresponding concessions were received in return.

Mr. Conover scored the failure of the State Department to apply corrective measures when it was found that damage had been done to domestic industries. He pointed out that the zinc industry suffered immediate damage when the reduction in the second Canadian agreement was announced, not only from greatly increased imports but from the depression of domestic price levels and from the loss of that confidence in the future so essential to a natural resource industry which requires years of preparation before actual production takes place.

"The zinc industry's case," he stated, "fulfills completely the conditions of the escape clause in the Canadian treaty. Under this clause our country has the right to withdraw or modify the concession on any article 'if, as the result of the extension of such concession to other foreign countries, such countries obtain the major benefit of the concession, and if in consequence imports of the article concerned increase to such an extent as to threaten serious injury to domestic producers.'

"Repeated conferences with the State Department have brought out clearly that the zinc duty had been reduced without an adequate comprehension of the facts, and without any evidence of such painstaking and accurate study as is claimed to be an inherent part of the trade agreement procedure."

Mr. Young and Mr. Conover were closely questioned by Senators Clark, George, Brown, Johnson, and Wiley, with great interest being displayed in the damage done the zinc industry under the Canadian agreement.

Before Mr. Young was dismissed from the witness stand, Chairman Pat Harrison made the following important observation:

"To my mind, just from your testimony and what I know about this situation, I think that you have something to be aggrieved about. I think there was a mistake made in the Canadian agreement because it was not the chief competing country, and gave an advantage to Mexico, but I am advised that they are still considering this matter up there and they have asked the Tariff Commission to send in to your various zinc territories to make another investigation of this matter, and it is the hope of some of us that this matter will be straightened out."

ity, of the fundamental question as to whether this import excise tax could legally be made a subject for negotiation with a foreign country.

In the case of zinc ore and metal, duties on which were reduced \$6 and \$7 per ton in the Canadian agreement, an official explanation was issued by the State Department in a memorandum dated December 20, 1939. This showed numerous misconceptions and erroneous interpretations of the facts of the zinc industry, as is plain from reading a response prepared by domestic zinc producers.

In reaching its conclusions it is evident that the State Department failed to consult or ignored information

available from the United States Bureau of Mines, a government agency fully informed and in position to submit an authoritative, impartial analysis of all pertinent facts. Such an analysis, issued by the Bureau of Mines in June, 1938, made it plain that a reduction in the duty on zinc would seriously injure this important domestic industry. A further analysis by this same bureau on June 27, 1939, demonstrated conclusively the actual injury which had resulted from the treaty.\*

With respect to cadmium, the duty on which was cut in half by the Ca-

\* Copies of the memoranda and analyses referred to were inserted in the record to substantiate these statements.

nadian agreement, the State Department in an official release at that time made the statement: "This metal is a by-product of the copper refining industry, and constitutes only a very small fraction of the value of that industry's product." The fact is that practically no cadmium is produced as a by-product of copper refining, and that over 95 percent of the cadmium output of this country is produced from the smelting and refining of zinc. Yet on the basis of such a total misapprehension of the facts, the zinc industry, already severely hit by the reduced duty on zinc itself, was again penalized. Does such procedure lend support to the assertions made to this committee that extraordinary "impartiality, care and accuracy" are exercised before reducing the protection afforded an established domestic industry?

### (3) Failure to Recognize Fluctuations in Exchange

Although various trade agreements concluded under the act contain provisions permitting their modification or cancellation where exchange rates have materially changed, to the detriment of American industries, no action under such a provision has been taken in any one of the 22 trade agreements thus far consummated.

The accompanying table shows a list of countries with which these agreements have been made, showing the effective date of each agreement, the exchange rate (in dollars) of the country's monetary unit at that date, and the exchange rate at January 1,

place. In the case of certain countries, the depreciation of the currency involves even greater reductions in our tariff protection than were made in the trade agreements themselves.

The fact that regardless of such adverse developments, no action has been taken by our government in a single instance to equalize and restore the tariff protection which remained when these treaties were promulgated, constitutes a serious defect in the administration of the Trade Agreements Act. We submit that the act should be so modified as to require corrective action.

### (4) Failure to Modify Concessions When Injury from Third Countries Shown

One of the gravest and most injurious defects in the administration of the present act has been the failure to recognize damage sustained by domestic industries and to exercise the flexible provisions under which such damage may be remedied. In practice a trade agreement, once entered into, has proved to be completely inflexible.

It is true that each of these agreements contains a clause providing for withdrawal or modification of the concession granted on any article, if as the result of extending such concession to other foreign countries, such countries obtain the major benefit, and if in consequence imports of the article increase to such an extent as to threaten serious injury to domestic producers. This provision has been repeatedly pointed to by those in charge of the

program to date, there has been but a single minor instance in which this much-advertised procedure has been availed of to help any industry which had been placed in jeopardy under the program.

The zinc industry affords a striking example of the failure to afford needed relief. Although the injury to domestic producers, amounting to \$7 per ton of metal, occurred immediately upon announcement of the Canadian agreement, and even prior to its effective date (January 1, 1939), due to the long-established custom of selling in world markets for future delivery, and although the damage inflicted was brought to the attention of the trade agreement authorities through every available channel, no concrete recognition of such protests was given until September 18, 1939, when an informal hearing was held to review the situation. Meanwhile a complete analysis by the United States Bureau of Mines, referred to above, had been placed before those in charge of the program, together with cost figures and exhaustive economic data from the industry, demonstrating the vital need of remedial action. At the hearing this need was further emphasized by Dr. Walter Renton Ingalls, internationally recognized authority on zinc, director of the American Bureau of Metal Statistics, and chairman of the Subcommittee on Zinc of the Minerals Advisory Committee of the Army and Navy Munitions Board. These authoritative statements made it clear that in the case of zinc, there had been no justification, under the announced policies of the State Department, for reducing the duty in the Canadian agreement; that throughout the entire period up to the outbreak of hostilities in Europe on September 1 the industry was seriously injured—not through imports from Canada, the signatory country, but through increased imports from other countries who were obtaining by far the major benefit of the concession, as well as through the slump in domestic prices due to the threatened avalanche of further importations; and that there was every reason under the treaty provisions for withdrawing or modifying the concession which had been made. Yet throughout this entire period and down to the present date, no action has been taken.

We submit that the complete disregard by the administrative authorities of their own announced principles calls for a substantive change in the law itself, which will compel corrective action when needed to protect established domestic industries and em-

Country	Date Effective	Exchange Rate Effective Date	Exchange Rate Jan. 1, 1940	% Change
Cuba.....	Sept. 3, 1934.....	.9991	.8850	—11.4
Belgium.....	May 1, 1935.....	.1697	.1676	— 1.2
Haiti.....	June 3, 1935.....	.20	.20	
Sweden.....	August 5, 1935.....	.2556	.2380	— 6.9
Brazil.....	Jan. 3, 1936.....	.0847	.0606	—28.4
Canada (revised Jan. 1, 1939).....	Jan. 1, 1936.....	.9948	.8862	—10.9
Netherlands (including overseas territories).....	Feb. 1, 1936.....	.6874	.5325	—22.5
Switzerland.....	Feb. 15, 1936.....	.3306	.2243	—32.2
Honduras.....	March 2, 1936.....	.4920	.4900	— 0.4
Colombia.....	May 20, 1936.....	.5690	.5709 (Dec. 16) + 0.3	
Guatemala.....	June 15, 1936.....	1.00	1.00	
France (including colonies).....	June 15, 1936.....	.0658	.0224	—67.3
Nicaragua.....	Oct. 1, 1936.....	.9091	.2000	—77.9
Finland.....	Nov. 2, 1936.....	.0215	.0182	—15.3
El Salvador.....	May 31, 1937.....	.4000	.4000 (Dec. 31)	
Costa Rica.....	August 2, 1937.....	.1773	.1764	— 0.5
Ecuador.....	Oct. 28, 1938.....	.0695	.0661	— 0.5
United Kingdom (including Newfoundland and British Colonial Empire).....	Jan. 1, 1939.....	4.6265	3.9569	—14.5
Turkey.....	May 5, 1939.....	.8029	.5970	—25.6
Venezuela.....	Dec. 16, 1939.....	.3134	.3134 (Dec. 18)	

1940. Exchange rates have been furnished by the U. S. Bureau of Foreign and Domestic Commerce.

It will be noted that wide changes, adverse to American trade, have taken

trade agreements program to show that any damage inflicted under a foreign trade agreement could and would be promptly rectified; yet in the entire history of the trade agreements pro-

ployment. We suggest the insertion in the present act of a further paragraph, to be designated Section 2(b) (1), reading in effect as follows:

"When for a period of six months total imports of any article the growth, produce or manufacture of any foreign country on which the rate of duty has been reduced in any trade agreement negotiated hereunder from countries other than the signatory country shall exceed those from the signatory country, the President shall withdraw the concession made to such signatory country on such article."

#### (5) Failure to Provide Tariff Increases When Needed

A further defect is seen in the present trade agreement program in that its entire result has been to reduce duties, to bind existing rates against increase, or to guarantee that articles now on the free list shall not be made dutiable. In the changing world economy of recent years a sound tariff policy inevitably requires some upward revisions. Yet no case of increased protection is to be found in the thou-

sand and more items covered in existing trade agreements. Not only this, but the previously existing machinery for adjusting tariff rates upward or downward as the result of careful studies of domestic and foreign costs, has been nullified as to each article included in a trade agreement. The agreement constitutes an international contract, and during its life our country is virtually foreclosed from using other means, *either by executive or congressional action*, for granting vitally needed protection to any domestic industry whose products are listed in such agreement.

#### (6) Senate Ratification

We disagree with the statements of the Assistant Secretary of State before this committee that "Senate ratification of trade agreements would be not merely a check on the authority to be exercised by the Executive, but a complete *blackout*," and that "ratification is tantamount to repeal."

We submit that any trade agreement which cannot obtain ratification by the elected representatives of the American people cannot be in the public interest. We have the fullest confidence in the orderly process of democratic government. We believe that in a matter which so vitally affects every "established branch of production in agriculture, in mining, or in manufacturing industry," final authority should not be delegated to an executive agency, but that the findings or recommendations of such agency should be reviewed and approved by a duly constituted body selected by and responsible to the people.

The requirement of Senate ratification in our opinion will do much to safeguard the interests of domestic industries and American labor against misdirected zeal in the negotiation of trade agreements, and will compel a really thorough study of the economic situation with reference to each article.



Statement of

ERNEST V. GENT  
Secretary  
American Zinc Institute, Inc.

THE American Zinc Institute, Inc., represents 95 percent or more of the entire zinc mining, smelting, and manufacturing industry in the United States. Thirty or more states, including the mining states of the West, are vitally concerned in the production and manufacture of zinc and its products. It is estimated that upwards of 100,000 persons are directly dependent upon the zinc industry. In addition, thousands in the supply and service industries are indirectly dependent.

#### (1) Zinc Duties Were Established by the 1922 Tariff Act

Zinc ore and slab zinc appeared on the list of commodities subject to possible concessions in connection with the trade agreement negotiations with Canada in 1938. Through written statements and oral testimony presented to the Committee for Reciprocity Information, the zinc industry sought to defend the then existing duties which were established not by the much-criticized Hawley-Smoot Tariff Act of 1930 but by the Act of 1922.

#### (2) Price and Employment Suffer on Announcement of Duty Concessions to Canada

In November, 1938, the reduction in the tariff rates was announced. The duty on zinc ore was cut \$6.00 per ton (of zinc content) and on slab zinc \$7.00 per ton. Normally the London market dominates the American market, and for several years the full protection of the tariff had been called into action. Consequently, in the face of the cut in duty, the domestic price immediately suffered to the extent of the tariff reduction. As slab zinc shipments in 1939 averaged close to 50,000 tons per month, this represents a monthly loss of \$350,000, or \$4,200,000 on a yearly basis.

In spite of the automatic reduction in the domestic price level occasioned by the duty cuts, imports commencing

January 1, 1939, entered in increasing quantities, and for the 11 months' period ending December 30 were just about double the imports in the same period in 1938. The price to which the market was thus forced represents to a substantial number of mine operators and smelters a subnormal and unprofitable level, with the result that one smelter shut down in March, a second went down on June 1, throwing several hundred workers out of employment. A third smelter announced that it was going out of the smelting business but eventually resumed operations at a reduced wage scale. A fourth was planning to close but was saved by the outbreak of the war.

#### (3) Third Countries Benefit, Not Canada

The record of imports clearly shows that while the duties on zinc were reduced as a concession to Canada, third countries and not Canada are obtaining the major benefits. In the period January-November, 1939, imports from Canada of slab zinc and zinc ore combined represented but 11.3 percent of the total. Among the third countries which profited, Mexico was the chief source with 62.6 percent of the total imports.

#### (4) "Escape" Clause in Canadian Agreement Not Exercised

In the Canadian agreement under Clause XIV there is a provision which states:

"The government of each country reserves the right to withdraw or to modify the concession granted on any article under this agreement, or to impose quantitative regulations on the importation of any such article if, as the result of the extension of such concession to other foreign countries, such countries obtain the major benefit of the concession, and if in consequence imports of the article concerned increase to such an extent as to threaten serious injury to domestic producers: . . ."

The zinc industry applied to the State Department for relief under this clause, with the result that numerous conferences were held. On September 18, 1939, a special conference with the Committee for Reciprocity Information took place, when 25 members of the zinc industry from 14 zinc producing states met with a large group of government officials for an informal discussion of the subject. No action has resulted from that conference. It seems to us remarkable that the State Department has not seen fit, in the case of zinc, to invoke the so-called "Escape" clause referred to, which at public hearings on reciprocal trade agreements has been much emphasized by government officials as a safety factor.

#### **(5) Self-Sufficiency of the United States Based Upon Adequate Tariff Protection**

The American zinc industry was established and developed under the protective influence of an adequate tariff policy. The United States is self-sufficient with respect to zinc and, except in the year 1937 when a power shortage resulted from drought conditions, imports have been negligible. Exports, which have not been of real significance in years, result almost entirely from imported zinc smelted in bond and subject to duty drawback. Consequently, the question of tariff is not involved in this phase of our foreign trade.

#### **(6) U. S. Bureau of Mines Supports Zinc Industry's Position**

On June 27, 1939, the Bureau of Mines of the Department of the Interior issued a report entitled "Bureau of Mines Analyzes the Reduction in the Tariff on Zinc." This report is in essential agreement with, and adds weight to, the position taken by the industry. The following is a brief extract:

"If the domestic industry is to continue to supply national requirements, it will have to become adjusted to the lower price level which is further reduced by a cut of .35 cent per pound in its tariff protection. To accomplish this, costs of production will have to be re-

duced, chiefly by lowering wages and by selective mining of the higher grade portions of ore deposits, neither of which is desirable. Reduction of wages is contrary to present governmental policies of increasing purchasing power and the robbing of ore bodies is decidedly anti-conservative and detrimental to the long time welfare of the industry.

"The alternative would be the loss of part of the domestic zinc market to foreign producers. From the viewpoint of public interest this likewise would be undesirable because it would aggravate the unemployment problem. Dr. John W. Finch, director of the Bureau of Mines, has pointed out that it would also be undesirable from the viewpoint of national defense."

This old established government bureau and its engineers, fully qualified and experienced in mining and metal economics, was not consulted by the Trade Agreements Committee in considering the zinc tariff matter. Surely a careful and complete investigation of the facts would not have omitted the opinion of the governmental authority on the subject.

#### **(7) Profound Changes in World's Zinc Picture Affects the U. S. Position**

The profound changes which have occurred in recent years in the world's zinc picture are referred to in the Bureau of Mines' report already mentioned. They were also dealt with in the Review of the Zinc Industry by Dr. W. R. Ingalls, an outstanding international authority, director of the American Bureau of Metal Statistics and chairman of the Zinc Subcommittee of the Minerals Advisory Committee to the Army and Navy Munitions Board. Dr. Ingalls personally appeared and presented his views before the Committee for Reciprocity Information at the special conference on September 18, 1939.

The reduction in the zinc duties came at an unfortunate time, as the competition from abroad has required the full use of the 1922 and 1930 tariff rates to protect the home market. This has been true since the beginning of 1936, and was accentuated by the artificially stimulated production by foreign countries in their urge to insure a sufficiency of national supplies for war purposes. Germany, for example, increased its production from 46,300 tons in 1932 to over 212,000 tons in 1938 and now controls Polish production which in 1938 amounted to 122,000 tons. On the other hand, the influence of the United States in the world's zinc picture has already suffered considerably. In 1926 the United States furnished 48.2 percent of the world's zinc production; in 1937, 32½ percent, and in 1938, 26½ percent.

Great Britain drew heavily on the United States for zinc supplies during the World War. Today Great Britain within her own Empire is self-sufficient with respect to zinc. Its government controls all nonferrous metals including zinc, and has contracted for the entire exportable surplus of zinc from Canada, Australia, Rhodesia, and Burma.

This control of zinc production and prices, together with the dislocation of the normal flow of zinc in the world's markets, may have serious repercussions in our domestic industry. Current import figures indicate that increasing quantities of ore and metal will likely be diverted to the United States from Central and South America which, under normal conditions, would be shipped to Europe. Furthermore, there is no assurance of the continuation of the present British policy. There is always the possibility that the large production under control may be dumped on the world's markets or even in our own domestic market for the purpose of creating Sterling credits or for some other reason.

When peace comes the rest of the world will undoubtedly seek to capture our choice domestic market. Production already established abroad will result in a great surplus of zinc, and we have already witnessed in early 1939 the remarkably low prices which foreign producers have been willing to offer.

In addition, the depreciation of foreign currencies is a factor which is likely to add materially to our need for adequate protection. For example, the reduction in the value of the Pound Sterling from \$4.65 to \$4.00 is equivalent to a reduction in the price of slab zinc of 43½ cents per hundred pounds, actually greater than the reduction in the duty itself which was 35 cents per hundred pounds.

In spite of the great enterprise shown by the American zinc industry, which has led the world in mining and metallurgical improvements, our disadvantages, commencing with the lower grade of ore available in the United States, through to the higher labor and other production costs, are too great to be overcome without the restoration of the former duties. Eventually, even greater protection may be necessary.

#### **(8) Tariff Concessions Discourage Essential Long-Range Planning**

With the outbreak of the war in Europe, the dominating influence of the London market was removed and the subnormal domestic price level was

corrected for the time being. It would be a grave misconception of the facts to assume that this increase in price completely cures the effects of the tariff reductions. Temporarily it has restored wage cuts, and mining and smelting production has been stimulated; but the zinc industry requires long-range planning and heavy investment of "risk" capital. The mere building of plant equipment is only one phase of the enterprise so essential in the mining industry. It requires many years of development between the search for new ore reserves and their full scale extraction. Today at great capital risk we should be exploring for deposits to be mined five or ten years hence.

The cut in the duties is interpreted by the domestic industry as a distinct reversal of the protective policy upon which now, more than ever, depends its survival. As a consequence, the proverbial optimism and enterprise of the zinc industry is drying up. Therefore, the uncertainties of the present situation involve the question of the continued self-sufficiency of the do-

mestic industry, not only with respect to the supply of zinc for normal industrial uses, but also for any emergency needs of the nation, zinc being an essential war material.

\* \* \*

This statement is respectfully submitted to the Ways and Means Committee as a factual account of the injury sustained by the American zinc industry as a result of the Reciprocal Trade Agreement program. We wish to emphasize that there are provisions within the Canadian Agreement itself, the Agreement responsible for the duty concessions on zinc, which could and should have been exercised to rectify the error and repair the damage.

The case of the zinc industry is offered for the consideration of this Committee in connection with its deliberations regarding the proposed extension of the Reciprocal Trade Agreements Act. If pressed for more specific recommendations, we respectfully commend to the attention of the Committee the statement already filed with your Committee by the American Mining Congress.



#### Statement of

EVAN JUST

Secretary

Tri-State Zinc & Lead Ore Producers Ass'n.

THE Tri-State Mining District of Oklahoma, Kansas and Missouri accounts for 40 percent of the mine production of zinc of the United States. Our industry, which normally employs about 7,000 men and produces approximately \$20 million worth per year of valuable raw materials from the

earth, is the backbone industry of a community of 100,000 people.

During the last 15 years foreign countries have developed such rich and abundant ore deposits that we have gradually had to lean more and more heavily on our tariff protection to retain the domestic market. Our defensive position is not due to inefficiency, as zinc producers have been able to furnish the needs of the Nation without increasing average prices, even though we have mined progressively lower grades of ore.

Because of our complete dependence on tariff we were seriously alarmed when the possible inclusion of zinc was announced with respect to the revised Canadian treaty. We gathered together the pertinent facts and presented them vigorously before the Committee for Reciprocity Information. We sought the assistance and support of several Congressmen. During these proceedings we were lulled into a feeling of security by numerous official statements that care would be taken to avoid harm to established domestic industries. We were also reassured by learning that it was the policy of the Trade Agreements Committee to make a concession only to the country which is the major source of imports of a given commodity. When in addition, the Bureau of Mines Year-

book of 1938 appeared, containing a wealth of facts which indicated beyond doubt that tariff reductions on zinc would seriously damage the domestic industry, we felt sure that the expert, painstaking, accurate fact-finding section of the Trade Agreements Committee would never support a cut in the zinc duties.

#### News of Zinc Duty Cut Hit District Like Thunderbolt

Consequently, when the details of the revised Canadian treaty were announced, the news that zinc was included in the list of concessions was a thunderbolt to the entire domestic zinc industry. This was particularly true in our Tri-State District, which we knew would suffer most because it mines unusually low-grade ores. This feeling of despair has not been assuaged by an unrealistic analysis issued by the State Department to assure us that our fears were groundless, and that we were not victims but actually beneficiaries. On the contrary, our despair has grown deeper and deeper as more and more citizens have realized that continuance of the present policy will gradually reduce our busy community to a depressed area. It is our conviction that we have been traded off in defiance of the stated principles of the reciprocal trade program. We are a long-established domestic industry and we have been damaged. Also, Canada was not and is not the principal source of zinc imports. Mexico and Belgium have been the chief beneficiaries of the tariff reductions.

#### State Department Has Evaded Corrective Action

In a year of painstaking efforts to educate the trade agreements administration to some practical comprehension of the zinc business and to convince them of the damage they have dealt us, we have obtained no satisfaction beyond vague assurances that they would prevent us from being hurt. I can assure this Committee that it is particularly disheartening to be seriously harmed; then, taking the stated policies of the State Department in good faith, to labor diligently to show how and why you are injured; to have unanimous recognition of damage throughout the industry and the complete corroboration of the foremost authorities; to be supported unreservedly by the Governmental bureau best qualified to judge, namely the Bureau of Mines, and then to be diplomatically evaded with the implication that all this weight of facts and opinion is

twaddle and with the statement that you will be helped when you are hurt. It is because of disillusionment from this treatment, and our fear that blind loyalty to an altruistic conception will never permit recognition of our plight, that I am now before this Committee. We believe that a detailed scrutiny of the zinc case will demonstrate that the organization which administers trade agreements is overweighted with academic viewpoints and an excess of zeal which prevents the objective consideration so essential to proper administration.

Our Congressional friends have been so often confused by statements that we have not been hurt and will be helped when we are, that I will now proceed to explain the actual damage sustained:

#### **Severe Cut in Concentrate Prices**

First, because of our defensive position with respect to foreign competition and our complete dependence on tariff protection, the immediate and incontestable result of the Canadian agreement was a drop in our concentrate prices of \$2.50 per ton. This loss exceeds the average profit of any single year since 1927, except 1929, and vastly outweighs the average profits of the last 15 years. Over the nine months from December 3, 1938 to September 2, 1939, the total loss was \$729,375 on 291,750 concentrate tons.

If our mine operators had followed the dictates of sound mine accounting in the face of this crushing blow, the effect on employment would have been devastating. However, mining men are remarkable for their tenacity in the face of obstacles, and the condition was met, not by the starvation of our labor, but by the sacrifice of normal capital deductions for depreciation and depletion. It should be obvious to almost anybody that such a solution could only be a temporary expedient and that the industry would gradually drift into ruin, but over a period of nine months this fact was never comprehended by the trade agreements administration. If we had preserved our solvency by letting labor suffer, I am sure that great alacrity would have been exhibited in providing remedies, but this course was never taken.

#### **Increase in Imports**

Second, we have been damaged by the actual volume of new invasions of our domestic market since the reduction in duty. The combined total of entries for consumption and withdrawals from bonded warehouses of

slab zinc and zinc in ore were 53,879 tons during the first 11 months of 1939. This is comparable to 11,153 tons during the corresponding period of 1938, and represents an increase of 42,726 tons or 3,884 tons per month. The tonnage of zinc upon which drawback was refunded because of exports was only 155 tons per month greater in the first three quarters of 1939 than in the corresponding period of 1938. Therefore we have an apparent net invasion of the domestic market of 3,729 tons per month or 7.5 percent of the domestic market. The bulk of this tonnage has come, not from Canada, which presumably paid for the concession, but from Belgium and Mexico. The first of these beneficiaries paid only the intangible price that we may or may not collect through most-favored-nation treatment. The second does not even appreciate the gifts granted to them at our expense sufficiently to disgorge the expropriated property of our fellow citizens.

#### **Long Range Planning Discouraged by This Treatment**

Third, the mining industry cannot perpetuate itself without long-range planning, as the development of new mining properties requires extensive exploration, much loss through the fruitless investigation of prospects, and large investments in acquisition and development of exploitable properties. If we lack confidence in our future, as we actually do in the light of our treatment under the reciprocal trade program, the pulse and vitality of our industrial body are extinguished and we are reduced to the basis of a salvage operation. In an industry like our own, the psychological effects of Governmental policy are vital and must not be dismissed with a wave of the hand as inconsequential.

#### **Denial of Remedial Action Because of Subsequent Price Rise an Evasion of Basic Facts**

We regard it as an evasion of basic facts to deny as remedial action simply because the outbreak of a major European war temporarily improved our price structure. It is true that the war relaxed the pressure of foreign zinc in our market and the price jumped for a few months to a level compatible with ordinary domestic supply and demand relationships. More recently, the price has again declined, chiefly because of an accelerated flow into our markets of Mexican ore, which cannot reach its normal European out-

lets because of the war. What further effects may develop out of the chaotic maelstrom which world trade has become cannot be predicted. Any price benefits that may possibly arise out of war time conditions will not result in healthy progress of the zinc industry as long as we feel sure that the restoration of peace will swamp us with foreign competition. Naturally, we have little faith in what the present administration of our tariff policies may do to assist us in such a case, after nine long months of perseverant effort prior to the war failed to obtain realistic understanding.

It may be assumed that the price reductions so costly to us were compensated by benefits to consumers. Such a viewpoint takes no account of our strategic importance in case of war. It also neglects the fact that any price change for zinc equivalent to 50 percent increase or decrease in the old rate of duty would not be reflected in prices paid by the consuming public. This is because zinc is a minor component of consumer goods and its cost is a negligible element in the cost of finished articles.

#### **Self-Sufficiency for Defense Requires Continuation of Industry**

The argument is likely to be presented that if our national reserves of zinc ore are in a more advanced stage of depletion than foreign reserves, it might be a reasonable step to discourage further utilization of our own supplies and conserve them for a future national emergency, meanwhile depending upon imports. Such an argument is likely to appeal to parties unfamiliar with mining economy, but is absolutely fallacious. It takes many years to convert a metalliferous orebody from its virgin state to a productive resource. The procedure demands large investments in development and plant, a trained personnel, and a steady improvement of technique. If these factors are permitted to become decadent, the natural resource will have no practical value in a national emergency, as it would take several years before the domestic industry could meet the demands made upon it.

#### **Amendments Needed to Correct Injurious Conditions**

Naturally, this Committee expects to hear what suggestions we have toward the alteration of existing law. We primarily seek correction of conditions that permitted the unwarranted (Continued on page 51)

# The WAGNER ACT and the MINING INDUSTRY\*

- *Its Administration Has Resulted in Diametrically Opposite Results from Those the Act Was Designed to Effectuate. United Stand of Mining Industry for Amendment Strongly Urged.*

THE Labor Relations Act of 1935 marked an attempt to adjust labor relations throughout the United States which is still on trial. It was and is designed to bring about a situation by means of which employers and employes may meet upon a common ground to determine the conditions under which they shall carry on their relationship without undue advantage to either party. With the objectives of this law no one who desires a more harmonious relationship in industry can possibly quarrel. Like most grandiose attempts to work out ideal conditions, however, there is still much to be desired in the actual operation of the law.

Those who fostered the movement which resulted in the Wagner Act were motivated by the belief that employers generally were not inclined to give labor that proportion of the profits of industry which was its due. The man who wrote the Wagner Act did not have, perhaps, a very wide, comprehensive knowledge of the conditions surrounding labor generally throughout the country. He had witnessed acts of injustice which occurred within his own range of vision. He measured labor relations generally by the conditions surrounding the industrial areas of the Atlantic seaboard. While those who speak most eloquently of the objectives of the Labor Relations Act are careful to say that the great majority of employers desire to treat workmen humanely, they are nevertheless intent upon writing laws of most stringent application to employers and of enforcing them in a manner which is intended to correct

certain abuses existing in labor relations without recognizing that those abuses apply only to the minority, and that general laws react upon good and bad employers alike.

The difficulty with this kind of legislation is that its enforcing officers enter upon their duties with a conception that the relation of employer and employee necessarily connotes conflict. The greatest wrongs which have been committed in the administration of the Wagner Labor Relations Act have been done because those who have been charged with the enforcement of that Act have believed and still believe that organized labor is more or less sacrosanct; that it does not do wrong, and that any of its acts which may be in violation of peaceful and harmonious conduct of business have been brought on by the attitude of employers toward their employees.

## Basic Factors Underlying Harmony

We can never have a proper administration of a labor law which does not recognize that it has to deal with the primal passions of man. These passions are greed, love of the exercise of power and a complete failure to recognize the rights of human beings and the protection of that which they have acquired through honest effort. Until all employers recognize the dignity of labor and the fact that men and women toil for their daily bread, not because they are inferior beings but because they are carrying out the great law of human society—that only through all our efforts can we attain and retain our position in human society; until all men and women who toil realize that it is inherently wrong to take advantage of an em-



By DONALD A. CALLAHAN  
Wallace, Idaho

ployer by reason of the strength which comes through organization, we shall never have that harmonious relationship which will bring true happiness to the human family.

The employer who believes that all efforts to better the condition of the working man through organization must be resisted is not only an enemy of society—he is an enemy of all other employers. The man, temporarily in a position of authority in a business organization, who feels that it is his duty to exact the last pound of effort from those who are temporarily subject to him, is doing his part to bring about a class consciousness which in the end will destroy Christian civilization.

The business of mining is peculiar in that its rewards are large when once a profitable property has been developed to the point of production. The men who work in mines have little conception of the risks taken by those who have brought the property in which they toil to successful production. They do not understand or appreciate, and, as a matter of fact, they cannot be expected to understand and appreciate the fact that a successful mining operation represents very often the outcome of lives of self-denial and of that faith which literally moves mountains. They read the balance sheet of today, and balance sheets do

\* Presented to Annual Metal Mining Convention of the American Mining Congress, Western Division, Salt Lake City, Utah, August 29, 1939.

not take into account the sacrifices and risks of the past. With the employee of a mine the property is an entity. What stockholders and management receive from its profits means to the man in the mine or mill only that they may be receiving the larger portion of the result of the toil of those who strain and sweat and perhaps risk their lives in the daily operation of the property. We cannot establish successful and harmonious relations with the great rank and file of men who work in the mines unless we recognize these facts, take due notice of the point of view of the present employees of a mining enterprise and meet that point of view with full sympathy and understanding.

I believe that the great majority of mine managers of this country approach the problem of labor relations with a full understanding of the responsibility resting upon them to maintain harmonious relationship. The mining industry profits by such relationship with the men who are employed. Whatever may have been the attitude of mining management in the past in isolated cases, I am of the opinion that there is now a thorough understanding of the necessity of promoting the good feeling and confidence which is so essential to successful mine operation.

The Wagner Labor Relations Act does not conduce to harmonious relationship between men and management. That is due to several reasons.

#### **Wagner Act Founded on False Premise**

First. The Act is founded upon a false premise. It seeks to erect a barrier between management and men because it recognizes something which does not exist, that there is a class distinction between employer and employee. The preamble to the Act declares: "The denial by employers of the right of employees to organize and the refusal by employers to accept the procedure of collective bargaining lead to strike and other forms of industrial strife or unrest." To launch a general law which is designed according to its title "to diminish the causes of labor disputes burdening or obstructing interstate and foreign commerce, etc.," with such a declaration is to raise the presumption that such practices, which everybody agrees are highly objectionable, are common and not exceptional. Such a declaration entirely ignores the demonstrable fact that the majority of strikes and other obstructions to commerce are not due

to unfair labor practices of employers. On the contrary, the Act distinctly restrains only employers and lays no stress upon the obligations of employees.

It is clear that such a law is entirely out of line with the philosophy under which our entire American jurisprudence is founded. From its very inception the Act has created the presumption that employers need restraint because they have indulged in unfair labor practices. The further presumption grows from this that employees are always fair, and accordingly we have the spectacle of the Government of the United States creating a class issue and throwing the whole weight of its tremendous influence on the side of one of the classes which it has created by its own fiat.

Until the law is rewritten to provide for equal treatment of employers and employees it will never be a means of bringing about its objective—that of diminishing the causes of labor disputes. It will continue to encourage such disputes.

#### **Administrative Personnel Chosen for Labor Sympathy**

Second. This one-sided law, having been enacted and notice having been served that there is a class struggle and that the Government has definitely taken sides in it, it naturally follows that those who were appointed to administer the law were selected because of their entire sympathy with that point of view. The Act is deficient inasmuch as it does not provide, as did the National Labor Board under the N.R.A., for representation of employers and the public upon the administrative board. The entire administration of the Wagner Labor Relations Act for the past four years has been one to encourage excesses upon the part of labor and a bitter feeling upon the part of employers who feel that they are being coerced simply because they belong to the class with which the Act has no sympathy.

Not only the Board but the entire enforcement personnel has been motivated by the same philosophy. The agents and attorneys of the National Labor Relations Board have been selected from a class of theorists who have not had any actual experience in industry, and who know none of its problems first hand. They enter upon their duties apparently with the belief that the Wagner Labor Relations Act was passed because all employers need restraint and that which is most to be desired in our American

industrial life is the setting up of powerful national and international labor organizations which will have sufficient strength to completely dominate the industrial picture.

The average agent of the National Labor Relations Board feels it is his duty to seek out reasons why harmonious relations do not exist. They listen not to the calm, cool-headed employees, but only to those whose business it is to create strife and discord. They constantly work with the organizers of labor unions. They aid and assist in every way in bringing about complete unionization, and they do not believe that it is possible without such organization of labor for employers and employees to live together harmoniously, treating each other fairly, and enjoying the peace which the Act is supposed to promote.

For instance, neither the Labor Board nor its agents believe that an independent union can possibly be free from employer domination. The independent union becomes a target immediately, and if the agents of the Labor Board can possibly unearth the least evidence of support and comfort being given to such an organization by the employer, they feel that they have gone a long way toward freeing labor from unfair treatment.

I believe that we cannot expect a different attitude on the part of the Labor Board as long as it is recruited from the ranks of those who believe that the relation of employer and employee is necessarily one of conflict. The representatives of the Labor Board must cease to give aid and comfort to those whose stock in trade is the provocation of strife. They should enter into every labor dispute with the presumption that there are two sides to every question, and that until one side or the other is clearly proven to be in the wrong the great Government of the United States must not become a champion of either. Such an attitude on the part of the representatives of the Board will not be had until we have representation of employers and the public upon the Board itself.

#### **Suspicion Runs Deep**

Third. There seems to be a presumption upon the part of those who administer this law that employers will resort to almost any means to keep their employees in subjection. The decisions of the Labor Board to date clearly prove that they are willing to accept the most flimsy evidence, in most cases entirely circumstantial, that employers have hired spies to go

among their employes and worm themselves into their unions for the purpose of securing information as to employe activities. I have in mind one particular decision of the Board—that in the Sunshine Mining Company case—where a certain employe was accused of being a company spy. The Board used this language with reference to him: "His pay was assigned, yet he appeared well dressed, owned an automobile, boasted that he made as much money whether he worked or not and in one instance denied the right of a shift boss to discharge him." There was not a scintilla of evidence that this man was an undercover spy for the company, and the company denied that it had ever engaged any spy or undercover man to work for it.

If the Labor Board, operating under this Act, is to take a position of that kind, then the employer is convicted of unfair labor practices simply because he is an employer and because there is a labor dispute. The presumption that employers generally adopt such tactics seems to be a part of the philosophy of the agents of the Board. They look for such a condition, and seek evidence to establish their opinion. There is no question but that under the loose method of conducting hearings by trial examiners evidence of some kind to that end may be forthcoming.

#### **Employer Banned from Expressing Opinion**

Fourth. The Act further places an absolute ban upon the expression of opinion by an employer. A labor organizer may come into a community where labor relations have been peaceful, harmonious and mutually advantageous for management and men; he may make the most violent statements imaginable either publicly or behind the closed doors of a labor meeting; he may arouse the most vile passions of men, spread the seeds of hatred and distrust wherever he goes—yet under this law he cannot be called to account for such action even though he has told untruths and drawn conclusions that were not warranted. In protecting himself and his business from such an agitator the employer is absolutely helpless. Under the decisions of the Board, employers and their representatives feel themselves absolutely denied the right to advise, counsel or confer with their men, even when counsel and advice are requested. There is no question but that a decision of the Board that



*"We cannot establish successful and harmonious relations with the great rank and file of men who work in the mines unless we take due notice of the point of view of the present employes of a mining enterprise and meet that point of view with full sympathy and understanding."*

an employer has been guilty of coercion of employes with regard to their membership in a labor organization should be subject to a searching review by the courts, and such coercion should not be presumed but should be proven by the weight of evidence. In the Labor Board's attitude on this point we see fully exercised the carrying out of the philosophy which they believe should govern the administration of the Act—that the employer is always wrong and his motives are never fair toward his employes. That is a false presumption, and a law of the great Government of the United States should never foster or encourage it.

#### **Employers' Traditional Safeguards Removed by Procedural Features**

Fifth. The procedural features of this Act are apparently designed to place employers of labor at a disadvantage by removing the safeguards which centuries of experience have placed about those who are accused of wrong doing. In the first place, once a complaint has been filed, the Government throws the whole weight of its enforcement machinery upon the side of those who have made the complaint. It files the complaint before the Regional Director of the Board. Its own agents investigate the charges at the expense of the Government, and seek to secure any kind of evidence which will support its own accusations. The attorneys of the Government represent the complainants before a trial examiner who is selected by the Board itself. This trial examiner, in the admission of testimony, is not bound by the strict rules of evidence, and as a result testimony which would not be admitted in a court of law is welcome in support of the complaint. Sufficient time to prepare a defense to the charges made is not provided, and the

result is that the employer comes into the so-called court with the presumption of guilt hanging over him, a biased examiner to hear the cause and without sufficient time in which to prepare to meet the accusations which may be made. Then, again, a practice has grown up of introducing the case of the Government, and then changing the complaint to fit the testimony which has been offered.

It is an un-American procedure. As a matter of fact, it is a procedure in violation of all the established principles of Anglo-Saxon jurisprudence. Over many centuries the rules governing the procedure in courts of law have been built up so as to protect those who are accused of misdoing. Now, by one single statute, all this is wiped out, employers of labor are placed in the dock and the full strength and power of a government with unlimited resources are brought to bear to convict them.

Even after the hearings have been had and the record made, this disadvantage continues. It is true there is a right of appeal. It is true that after the Labor Board makes its decision it can only be enforced by authority of the United States Circuit Court of Appeals, but in cases where reinstatement with back pay has been ordered by the Board, the employer is faced with the alternative of acquiescing in the judgment which has been rendered or taking a chance of reversal with the tremendous penalty of accumulated back pay until final decision of the case. In many instances this risk is too great to take.

But even in the courts the employer is at a disadvantage. The law provides that the findings of the Board must be sustained by the court if there is "evidence" to support them. That does not mean what we recognize as legal evidence in a court of law, but that testimony which is admitted by

a trial examiner under the broad terms of the Act which provides that the "rules of evidence prevailing in courts of law or equity shall not be controlling."

It is true that the courts have revolted to some extent against this departure from the established rules of jurisprudence. They have insisted that there be "substantial evidence," and they have reversed the Labor Relations Board time and time again because of the insufficiency of evidence. But these occur in individual cases where employers have had the means to fight the Government to the last ditch. There are many employers who have refused to go to the courts because they are convinced that, even if they should win, the Labor Board and its agents stand ready to seize upon any pretext to renew the fight to bring them to terms.

#### **Act's Administration Has Deterred Business Revival and Injured Labor**

I am going to use some plain language which I regret being obliged to utter. The administration of the Wagner Labor Relations Act has fairly brought about a reign of terror among employers of labor in this country. It has humiliated men who have been deserving of high praise for the manner in which they have conducted enterprises which have built up this nation to its proud industrial position. It has overawed small employers and has militated against the investment of capital in new enterprises and the extension of old ones. It has been a great deterrent to a revival of business, and has prevented the free flow of capital into worth while business enterprises.

This law and its administration has brought about another situation which today is injuring labor itself. There is no question but that the epidemic of sitdown strikes grew out of the belief upon the part of certain classes of workmen that the Government stood ready to fight their cause to almost any length. There is no doubt but that the administration of the law has been responsible for the development of the great strife between the two great international labor organizations which are struggling for mastery in this country today, and there is also no doubt but that the law and its administration slowly but surely are bringing about a revulsion of feeling among the citizens of this country which eventually will destroy the very purpose of the Act. All over the land we find the most bitter

opposition to the Act and its administration, and the result of this in time will be a complete reversal of its present policy and a swing in the opposite direction which will embarrass labor and labor organizations.

#### **Amendments Needed**

Certain amendments to the Wagner Labor Relations Act have been offered in Congress, and the Committees of both House and Senate have been hearing testimony. With most of these amendments the mining industry is in hearty accord. It has presented witnesses before the Committee on Education and Labor in the Senate, and has presented its case. It has asked that Committee to consider amendments to the Act which will:

1. Provide a nonpolitical Board which will represent labor, employers, and the public.
2. Provide for a truly voluntary choice of representation and protection from interference, restraint or coercion from any source.
3. Provide that an employer may confer with, counsel or advise employees orally or in writing about any matter within the scope of the Act.
4. Provide that certain practices of labor organizers and labor organizations shall constitute "unfair labor practices" with a view to protecting employers from situations such as were described by practically every witness appearing before the Senate Committee on behalf of mining employers.
5. Provide for limitation of the discretionary power of the Board in the selection of bargaining units, and compel the Board to accept the wish of a majority of the employees.
6. Provide a democratic method of choice of representatives and a free expression of the will of the employees and a prompt determination of representation questions.
7. Provide that either an employer or a minority of employees may raise the question of representation and secure prompt determination.
8. Provide for procedural changes which will conform with those embraced in section 10 (b) of S. 1264, introduced by Senator Burke. Such an amendment will in my opinion result in the elimination by agreement of many points of controversy, and will result in harmonious adjustment of differences without the intervention of hearings by the Board or its agents.
9. Provide for a requirement that

findings of fact must be based upon the weight of evidence, and that conduct of hearings shall conform more nearly to established procedure in courts of law.

#### **NLRB Testimony at Congressional Hearings**

To this movement to amend the Wagner Labor Relations Act the National Labor Relations Board has offered a strong resistance. It would seem that we have created an administrative body which feels that it is its duty to resist every effort to remove the injustices of the law. I do not believe that there has ever been a spectacle in hearings before a Committee of Congress such as has been presented by the National Labor Relations Board, its agents and attorneys before the Committee on Education and Labor of the Senate and the Labor Committee of the House which have been considering amendments to the Wagner Act. First of all, the Chairman of the Board presented a statement of 150 pages covering every complaint that had been made against the law's administration, and this before the testimony of witnesses representing employers had been offered in the record. He was followed by the General Counsel with a similar statement covering cases which had been decided by the Board—this, also, before there was any appearance whatever on the part of employers or those who may feel themselves aggravated by the administration of the law. At the conclusion of testimony upon the part of industry, the General Counsel filed a lengthy criticism of all of the testimony which had been offered, supporting his claim as to the justice of the decisions of the board by the findings of the trial examiners and the decisions of the board itself. The hearings continued for months, and the agents of the board were present all the time. They do not seem to feel that it is incongruous for them to be using their time, for which the taxpayers of the nation are paying, in defending their own position, while case after case is awaiting disposition by the board.

If we are going to change our form of government so as to permit administrative boards the powers which have been conferred upon the National Labor Relations Board and then stand idly by while that board consumes the time it should be devoting to its own business in defending its action before a committee of Congress, we should not do it blindly and without full un-

derstanding of where it will lead to. Congress must give such administrative bodies full notice that they are its agents to do the job entrusted to them, and that their time must be devoted to that purpose. Congress itself can be depended upon to see that no injustice is done them.

#### Plea for United Stand on Amendment

The mining industry has been a great resource to the nation during all the period of depression. It is now and has been an outstanding factor in the development of our country. It has taken greater risks than any other. It has stood by its employees in time of depression. It has paid high wages, provided good working conditions, spent millions to provide safety for its employees. It does not deserve to be made a criminal before the bar of an administrative board which has prejudged its guilt. If sins have been committed in the past in the relations

of certain mine managements toward employees, the industry as a whole should not fail to denounce such practices, but it must stand firmly together, urge upon its representatives in Congress that they support amendments to the Labor Relations Act which will make it what it proposes to be, an instrument "to diminish the causes of labor disputes burdened or obstructing interstate or foreign commerce."

And above all, the mining industry must not be afraid to fight even though today the administration of this act is antagonistic, and reprisals may be expected. It is still the duty of those in charge of mining operations to insist upon their rights, to fight with all the strength that they possess to preserve the guarantees which citizenship in America still confers upon all. They must never consent to the theory that there is a distinction of class between employers and employees, and that the employing class can be

brought before the bar of a prejudiced court and convicted of the claim of unfair labor practices before it has had an opportunity to present its case.

I believe in organized labor and the right of collective bargaining. I denounce any attempt upon the part of management to coerce employees or to prevent them from joining any labor group which they feel will benefit them. I denounce espionage as unfair, and believe that it is a fruitful cause of labor unrest and lack of confidence in management. I believe that the great majority of mine operators subscribe to these views. In a spirit which recognizes the dignity of human labor and accepts it as a full partner in cooperative effort, let us demand of our government fair and equal treatment in the handling of labor disputes and a recognition of the mutual responsibility of management and labor in the promotion of peaceful, harmonious relations in a great common enterprise.

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## DISCUSSION

### HERBERT L. FAULKNER

Attorney at Law  
Juneau, Alaska

### D. P. STRICKLER

President  
Stratton Cripple Creek  
Mining & Development Co.

### ROSS D. LEISK

General Manager  
Sunshine Mining Co.

**HERBERT L. FAULKNER:** We have had some experience up in Alaska with the Wagner Act and with the National Labor Relations Board which we thought was unique.

I went to Washington in the spring of 1939 where I attended the hearings held before the Senate Committee relative to amendments to the Wagner Acts, and presented a statement in the Alaska-Juneau case. I found when I listened to the testimony of other witnesses who appeared there on behalf of the mining industry and other industries, that there was nothing at all unusual about the Alaska-Juneau case, and that perhaps most any of you could apply to us the words of the poet Longfellow: "Thy fate is but the common fate of all."

#### Alaska-Juneau Case Outlined

We had a strike up there that occurred before the Wagner Act was

passed, in May, 1935. There was no National Labor Relations Board at that time. The strikers opposed any election to see whether the majority wanted to strike or not, but they called for a conciliator, or a mediator, from the Department of Labor. This mediator came there, sent by the Department of Labor, and remained through the entire time until the men went back to work on the 5th of July. He was in constant touch with the strikers and with those who did not want to strike, and with the officials of the company, following which he made a report to the Department of Labor. Later on in the fall, after the Wagner Act was passed and the Board came into existence, charges were filed that the company had been fostering a company union which was organized after the strike was called, by the men who did not want to strike. Other charges were included. Some of the men said they

had been discriminated against and had not been reemployed, although employment had been offered to them all and most of those who did not get employment had not registered.

The man who signed the complaint was also designated as Trial Examiner, so he came there and we had the usual hearings with the usual results—evidence was suppressed, findings were made not based upon any evidence at all, and findings were made contrary to the evidence and transmitted to the Labor Board. The company was directed to reinstate about 114 men, with back pay. By the time the Board was through with the case, that back pay had accumulated so that it would have been something over \$100,000. The case was taken into the Circuit Court of Appeals; after being argued, the judges made a suggestion that the Labor Board modify its findings so the company could exist. So the findings were modified, and the back pay was reduced to about \$5,500. No one could afford to go any further with the case when there was nothing more than that involved. I just mention that brief outline of the case.

As I say, the hearings before the Labor Board on these cases have all been pretty much the same, with very much the same result. You hear the same old story when you hear these witnesses come forward to testify—stories of suppression of facts, of one-

sided hearings and findings not based upon the hearings, of approval by the court, and men ordered to be reinstated who had perhaps not applied for employment, with back pay ordered running up into large sums.

I felt as a result of those hearings, from what I saw in Washington (I was there for about four weeks and attended a session nearly every day) and from my conversations with men who were interested in the work, that there is a swelling tide of opposition to the administration of this law as it has been accomplished in the past. There is a swelling tide of opinion being given to the public through these hearings which is going to result in very drastic changes—perhaps in the personnel of some of the examiners, in the interpretation of the law and in its administration and application to all these cases.

The point I want to stress is this: There is no use for us in these sessions to try to pass resolutions, and go home and voice our opposition to these laws unless we can offer something constructive. As Senator Callahan has very ably pointed out, the Board at the very outset seemed to begin its activities upon the assumption that there was a conflict and should be a conflict between management and labor, that the two had nothing in common and that there should be a state of eternal warfare existing between employers and their employees. One who goes through one of these hearings will readily see that that seems to be the feeling the Board wants to create among employees.

#### Act Is Two-Pointed Sword

The principal suggestion I wish to make is as follows. In discussing the Wagner Act and the treatment the mining industries and all other industries have received at the hands of this Board, we should bear in mind one thing and try to instill it into the minds of the general public, and especially the working men—namely, that where a Board created under an act such as this can be as biased and prejudiced and one-sided and make such one-sided interpretations of the law as have been made by the National Labor Relations Board, they can do the same thing the other way. If there is a feeling of revulsion against this Board, and against some other administrative boards mentioned by Senator Callahan, we may, on a wave of emotion throughout the country, get a different type of administration which

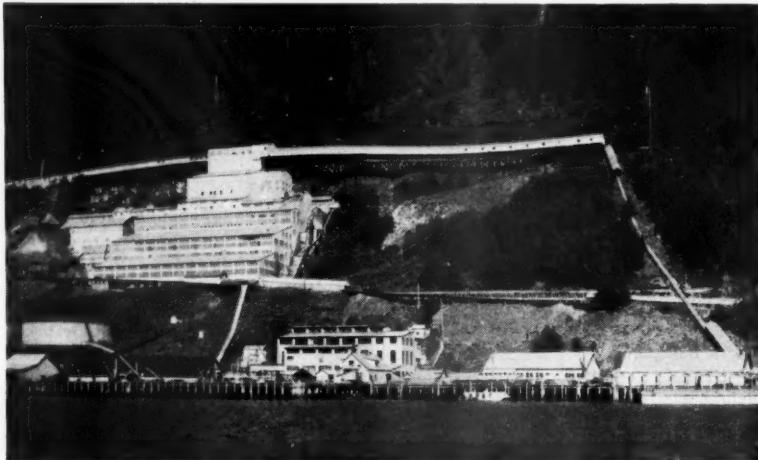
would result in a different type of Board who might just as easily go the other way and interpret the law against the interests of the workers, themselves. I think that is one thing that you should stress, and there is just as much danger to the workmen from having a law like this on the books, having it interpreted and administered in the manner in which this law has been administered, as there is now to the employers. It has been one-sided up to this time. It may be one-sided the other way in the future.

#### Return of States' Rights Needed

The other suggestion I have to make is this: That we are not going to have any great changes. We may have changes in our laws, we may have some amendments on some of these

courts have come in and, by the recent interpretation of those laws, have held them to be applicable to almost every industry, and the rights of the states and their powers have been swept away.

There is not time to discuss this thoroughly now, but what we must have eventually is a restoration of states' rights and a re-definition of what constitutes interstate commerce. It may require a constitutional amendment, but we need a re-definition of the term "interstate commerce" so that the rights of the states in these matters of purely local concern are preserved and restored to where they were originally and where they were always intended to be under the Constitution. The same applies under the Wages and Hours Act. Most of these



The Alaska-Juneau mill at Juneau, Alaska

laws and changes on our Boards, but it seems to me that the problem confronting the industry and every other industry is something that is much deeper than that. It is the question of states' rights, the question of the extension of the Federal power by means of these acts throughout all the daily activities of all the citizens of the country. It is a departure from the fundamental philosophy of the Constitution of the United States. We set up in this country a dual form of government—one in which the states have the real power of legislation. There were only certain powers that were delegated to the Federal government. One of those was the power to regulate interstate commerce, as we all know. Under the guise of that power, Congress has passed all these laws: The Wagner Act, the Wages and Hours Act, and various others. The

things are matters of local concern, and a national law cannot be satisfactorily enforced without great damage to those localities which are concerned.

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**D. P. STRICKLER:** As attorney for the Golden Cycle Corporation, I represented them in the proceedings instituted by the National Labor Relations Board against this company at the hearing before the trial examiner of the Board beginning on July 19 and extending to and including August 2, 1938, at Colorado Springs. The Golden Cycle Corporation in this proceeding was charged by the Labor Board with refusing to bargain collectively with the majority of its employees with respect to rates of pay, wages, hours of employment and other conditions of employment.

In May, 1937, certain representatives of the International Union of

Mine, Mill and Smelter Workers, Local No. 358, affiliated with the Committee for Industrial Organization, stated to the company that they represented a majority of its employees and desired to negotiate a contract. Several conferences were had between the employees and the company, and agreement was arrived at as to the rates of pay, wages and hours of employment. However, the company and the representatives of the union were unable to agree as to the length of the time of the contract, the union contending that the term should be for a fixed period of one year, while the company contended that as the wages were based upon the present price of gold of \$35 per ounce, the contract should only last for such a period of time as gold remained at that price, and for the further reason that the company had no control over the price of gold, the same being fixed by Government and presumably fixed not solely upon the necessities of the mining industry, but upon the necessities of general business.

Another point of dispute between the company and representatives of the union was that while the union was willing to concede that in promotions, ability should be considered as well as the length of service, length of service only should be considered for selection of employees for lay-offs and reemployment, while the company contended that length of such service should only be controlling in instances where adaptability and qualifications were equal. Having reached a stalemate in the negotiations upon these two points in dispute, the Regional Director of the Labor Board filed a complaint against the company before the Labor Board, and a hearing was held upon that complaint beginning July 19 and running to and including August 2, 1938, at Colorado Springs.

Trial Examiner Griffen handed down a report last October holding in substance that the respondent was guilty of unfair labor practice in insisting that it would bind itself only so long as the price of gold remained at not less than \$35 an ounce, for the reason that collective bargaining within the meaning of the act as determined in the matter of the St. Joseph Stockyards case, a Labor Board decision, required an agreement for a fixed period.

#### Examiner Refused to Follow Idaho-Maryland Decision

The evening before this case was called for hearing, the United States



Southeast slope of Bull Hill in the Cripple Creek district, with Golden Cycle workings at right

Circuit Court of Appeals for the Ninth Circuit held, in what is known as the Idaho-Maryland Mines Corporation Decision, that where the mill treated only ores produced within the state of California and the mill in turn sold its product therefrom, namely bullion, to the mint at San Francisco within said state, that such mill was not engaged in interstate commerce. The respondent company upon the following morning moved to dismiss this case for want of jurisdiction, basing such motion upon the decision in the Idaho-Maryland Mines Corporation case.

At the conclusion of the argument upon this motion the trial examiner announced that he would continue the hearing until such time as he could get advice from the Labor Board at Washington as to what position to take in view of this decision. Some two days later, the trial examiner announced that he had heard from the Labor Board and that therefore he would proceed with the taking of the evidence in the case.

In the findings submitted the trial examiner on this question held that while the evidence conclusively showed in the instant case that the respondent, Golden Cycle Corporation, treats only ore that comes from Colorado, and is sold only in Colorado, and therefore is not engaged in interstate commerce, but that he felt that it was not realistic or legalistic to hold that such business did not affect interstate commerce, and therefore he would not be bound by such decision, and hence held that the respondent company was under the jurisdiction of the act. The Idaho-Maryland decision was not appealed on this question at the time the examiner's report was written.

The respondent company filed its exceptions to the examiner's report in October, 1938, within the time pro-

vided by the rules of the Board, and also filed separate motions for leave to file a brief in support of their objections, and for leave to make an oral argument before the Board in support of such exceptions. The company was advised by the secretary of the Board that such exceptions were in proper form, and that the respondent would be advised in due course as to when it should file its brief and what time should be assigned for oral argument. Since then the respondent has heard nothing further about the case.

It is difficult for me to understand why a trial examiner should feel that he was bound by a decision of his own Board, with which he does not agree as to one point in a case, and then refuse to be bound by the only decision of the courts upon another point in the same case simply because he does not agree with that decision.

#### Brief Time to Prepare Case Unfair

Another thing which seemed to us unfair was that while the Government took over a year to prepare its case against us we were required to answer within five days and go to trial thereon within three days thereafter. Our company is engaged in a business which requires a 24-hour operation, and the only way that counsel could ascertain the facts with reference to the matters charged against the company was through the employees in charge of the operation of the company, drawing them away from their employment during this 24-hour period. We think that a respondent should have more time in which to answer, so that it may know what it is in position to deny and what it should be required to admit as to charges contained in the complaint; and we think, further, that when that complaint is heard it should be heard

before a court and not before the same tribunal that causes the complaint to be filed.

Regardless of our repeated importunities to the Labor Board to set the Golden Cycle case for hearing before it upon our exceptions, we have been unable to get them to do so even though our exceptions were filed as early as last October. In the meantime the Regional Director was busily engaged in importuning us to compromise the case, to which importunities we replied that we wished a decision of the courts upon the questions involved in order to know whether or not we are in violation of the law. Industry has shown its ability in the past to conform itself to bad laws, but how in the world can industry conform itself to a law when it does not know what that law is, and the proceeding inaugurated by Government is such as to prevent the citizen from being able to have the questions determined before a court of law?

#### Case Suddenly Dismissed

Although the Regional Director was importuning us to make some compromise in this case while we were unsuccessfully trying to get a hearing before the Board itself upon the exceptions filed to the examiner's report and after about a year has elapsed therefrom, on last Friday the Labor Board entered an order reading as follows:

"Permitting withdrawal of charge and dismissing complaint. A charge and an amended charge pursuant to Section 108 of the Act. Having been filed by the International Union of Mine, Mill and Smelter Workers Local No. 358. A complaint thereon having been issued. A hearing having been duly held before a trial examiner duly designated. The intermediate report of the said trial examiner having been issued and served upon the parties and thereafter International Union of Mine, Mill and Smelter Workers Local No. 358 having requested permission to withdraw its said charge and the Board having duly considered the matter, it is hereby ordered pursuant to Article 2, Section 1 of the National Labor Relations Board Rules and Regulations Series 2 that the request of the International Union of Mine, Mill and Smelter Workers Local No. 358 for permission to withdraw the charge filed in the above entitled case be and it is hereby granted and it is further ordered that the complaint in the above entitled case be and it is hereby dismissed."

#### No Chance to Recover Losses

My company has spent its money for lawyers and paid to the Government for copies of testimony introduced at the trial, and has suffered loss, through interruption of its business by reason of its proceedings, of

large sums of money; but neither the Government, which caused the loss, nor the labor organization, in whose behalf the proceedings were instituted, can be called upon by laws to reimburse my company for such damage and loss.

#### Amendments Needed

In my opinion the act should be amended to provide a more orderly procedure which will apprise the employer of the nature of the complaint against him in sufficient time to enable him to be properly represented at a hearing; that employers should be permitted to counsel and advise with their employes so long as they refrain from coercive tactics; that the Board's procedure should be speeded up to provide for early hearings upon exceptions to reports of trial examiners, and that the machinery of the act should not be used to force contracts upon em-

ployers which, in the language of the examiner in the Golden Cycle case, will "subject the respondent to choice of continuing operations at a loss, or of closing the mill and throwing all employes out of work, or of cutting wages and subjecting themselves to liability for breach of contract suits and charges of unfair labor practices." And I most sincerely protest against the provisions which combine the functions of accuser, prosecutor and judge in a single Board.

Unless this Wagner Act is so amended as to do away with these objectionable and unfair provisions, the ever and increasing public revolt to such unjust provisions of the act and the interpretations made thereof by the Labor Board will, in my opinion, result in the repeal of the whole act. Thus labor will lose its most precious of all rights—namely, the right by law to require the employer to collectively bargain.

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**ROSS D. LEISK:** Mr. Callahan has covered this subject in very good shape, Mr. Faulkner has voiced the particular things that have struck me as being most important in consideration of the question of the amendments of the Wagner Act, and Mr. Strickler has told a story that in the rough, with minor variations, is similar to the story of the Sunshine experience.

These things all follow the same general pattern. The Labor Board seems to have a stereotyped plan that is followed in nearly all of their cases. Throughout the hearing of any case no opportunity is missed to develop and enlarge on a theory that the employer is the enemy of labor, and that all of his activities must be considered as planned acts of war against his employes.

Another essential part of such a hearing seems to be to have some labor spies. They do not seem to think a case is complete unless they have some alleged labor spies to smoke out. Then it is assumed that all of the employes who disagree with the complaining union are company-dominated and coerced, or what they call stooges, and that the testimony of these men is untruthful.

Then one other thing: They must have a company union to dis-establish. Any attempt by employes at local self-organization must be held up to scorn as a company union, to be attacked and destroyed by the Board.

When this is all put together, you may expect to stand convicted by the

National Labor Relations Board of having committed a great many unfair labor practices. If any of you have any doubt as to whether the National Labor Relations Act should be amended, I can certainly assure you, from our experience, that it should be.

Mr. Callahan has covered some of the important points, but to boil it all down, we must get rid of a situation in which the same body, the National Labor Relations Board, picks out and hires and instructs its trial examiners, its regional directors and its field examiners, to the end that this Board is simultaneously the prosecutor, the judge and the jury.

I could not possibly start in and describe in any kind of detail the Sunshine case, in the time available. The hearing lasted over a month, and the transcript comprises about 4,500 pages. For a single copy of this transcript we had to pay the reporting agency designated by the National Labor Relations Board 44 cents per page. We had to have in attendance during this affair some 486 shifts of labor of our own employes who were called as witnesses, or in one way or another had to attend the sessions. That, in itself, cost over \$3,000 in wages.

We had the same experience as Mr. Strickler mentions regarding insufficient time for preparation of the case. Imagine a case that is going to last over a month and have a record of over 4,000 pages, and have the complaint served on you seven days before you go to trial! We asked the regional

director for a short postponement of the opening date of the hearing. He said, "You may make written application if you wish, but it will not be granted."

#### Emphasizes Need of United Stand

At this point, and in response to Mr. Callahan's remarks, I wish to assure him that I am not afraid, and the Sunshine Mining Company is not afraid to differ with the Labor Board in its interpretation of what Congress intended when it passed the Wagner Act. We will not be afraid to continue our fight or to talk to investigating committees or to urge the correction by law of the biased administration of the Act which now exists. Neither do I think any one else here in attendance is afraid to do these things. This is important if we are going to get the Wagner Act amended so that it is fair, so that it has some sort of proper judicial procedure.

I would like to mention just a few scattered things from our case to illustrate the attitude and procedure of the Board and its trial examiners. We have had the usual experience with hearsay evidence and introduction of newspaper clippings as evidence, and all that sort of thing. I will read one or two things.

#### Refusal to Subpoena Union Book

In my testimony before the Senate Committee on Education and Labor, I discussed the conduct of the trial examiner. The Board subpoenaed the minute book of the Sunshine Mining Company, but the trial examiner refused our request that the union minute book be produced. The professional organizer was allowed to testify as to what went on in closed meetings of the union, but on cross-examination the trial examiner refused to allow the mining company to cross-examine him as to what went on in those closed meetings.

The Labor Board's attorneys prosecuting the case made this statement: "Counsel for the Government has no objection to submitting a list of the employees who are members of the union to opposing counsel. However, the Government does object to the submitting of the union's books for this purpose."

#### Objection of Union Membership Going Into Record

The Board had certain cards which it alleged to be evidence of union mem-

bership. One of these we marked for identification, and the Labor Board attorney said: "The Government makes objection to the application for membership going into the record. They are produced and the Government takes the position that they may be examined, or used for examination, but they are not part of the proceedings, and for that reason we object very strongly to putting the union record into evidence."

The Sunshine attorney said, "I take it that this being their original record, we have only the right to offer it and then substitute a copy."

Trial Examiner: "The objection of the Board is to its being introduced at all."

Board's Attorney: "Yes."

Trial Examiner: "I will sustain the objection."



Sunshine's new shaft and modern surface plant in the Coeur d'Alene, Idaho, dry belt

Sunshine Attorney: "Do you mean, Mr. Trial Examiner, we can't introduce them and then substitute a copy?"

Trial Examiner: "That is exactly what I mean."

#### Regarding Labor Spy

In its search for a labor spy the Board introduced some hearsay evidence to the effect that an employee named Higgins dressed neatly, but did not work steadily. On the basis of this the trial examiner in his findings stated that Higgins was a labor spy, and as his reason made this statement: "Higgins, though present throughout the hearings except the last two or three days, and active in conferring with respondent's counsel and his witnesses, did not testify."

The truth of the matter is that Higgins was subpoenaed by the Labor Board, was held in court throughout the hearing and was never placed on the stand by the Board to ask him if he was a labor spy or what he was. Incidentally, neither Higgins nor any of the other witnesses among our employes who were subpoenaed by the Board, ever got their witness fees from the Board.

#### Extreme Delay in Sunshine Case

The Sunshine strike took place August 2, 1937. That fall there was a Labor Board hearing, and it was about Christmas time when the trial examiner made the report. The following summer the Board issued an order, and now, over two years have passed and the case has not been settled yet. The

Board has recently petitioned the Ninth Circuit Court of Appeals for an enforcing order.\*

This is an illustration of the delays that take place in these cases which can involve very large amounts of money. Here the Board ordered reinstatement of some 200 men and the payment of back wages. While all of these men have long since either been employed or offered employment by us, so that we no longer have to face the pressure of a constantly growing potential liability, you can readily see the way in which a situation like that can be used to coerce an employer into making a settlement on the Board's terms when he knows he will be running the risk of bankruptcy through

\* The case was argued before the Ninth Circuit Court of Appeals in December, 1939.

(Continued on page 51)



# The March of COAL MINING

## Ten Years of Progress

### ENGINEERING STUDIES and COST ANALYSES

THERE are no answers in the back of the book. Many problems have arisen during the development of mechanized coal mining and many correct solutions have been found, but local factors have always entered into these equations, and consequently, the answers do not apply generally.

The foregoing does not in any sense mean that we cannot make use of the knowledge and experience that, individually and collectively, has been gained in modernizing coal mining. Just the reverse is true, and certain known facts which have been determined will point to certain definite conclusions, providing they are analyzed correctly. The value of analysis, however, depends on how it is made and the extent to which it is applied, and a number of companies are demonstrating that analytical methods, based on accurate cost and performance records, can reduce much of the "cut and try" that has been necessary in the past. The following article is submitted to show the methods used by one company to measure the efficiency of their operations and to minimize guesswork in planning changes and modifications.

To start the story at the beginning, when loading machines were first proposed for the mines of this company, the officials realized that an entirely different set-up would be required from that which had been used with hand loading. Since, at that early date, there was no precedent to use as a guide, they believed that it would be better and cheaper to find out, before the machines were installed, what changes in their organization and in their mining practices would be necessary, so that when the machines were put in the mine, everything would be ready for their operation. This was sound reasoning, as results proved.

In carrying out this plan, one entire

By G. B. SOUTHWARD  
Mechanization Engineer  
American Mining Congress

+ + +  
This is the second of a series of articles by G. B. Southward that will appear monthly describing developments which have been made in mining, and analyzing the factors that have contributed toward higher operating efficiency.

+ + +

mine was laid out for mechanical loading; all work was eliminated from the miners except the actual shovelling of the coal in the mine cars, and the track work, cutting, blasting and timbering were done by special crews, just as though the loading was mechanical. After several months of this operation, procedures and practices had been ironed out, and the machines were installed. This was nearly ten years ago, and the decisions based on this preliminary set-up had been so cor-

rectly analyzed that no major changes in operating technique have been necessary since that time. Naturally, refinements and modifications have been introduced, and there have been increases in production as the men became more efficient, but the basic system has remained the same.

This procedure has several advantages over the custom of installing an experimental loading unit and, through trial and error, discovering what changes must be made. The trial and error method is costly, and it has a further disadvantage in that one machine does not give complete information. Conclusions based wholly on an experimental unit often do not apply when the entire mine is put on a 100 percent machine loading basis, and performance records of a trial installation must always be carefully analyzed.

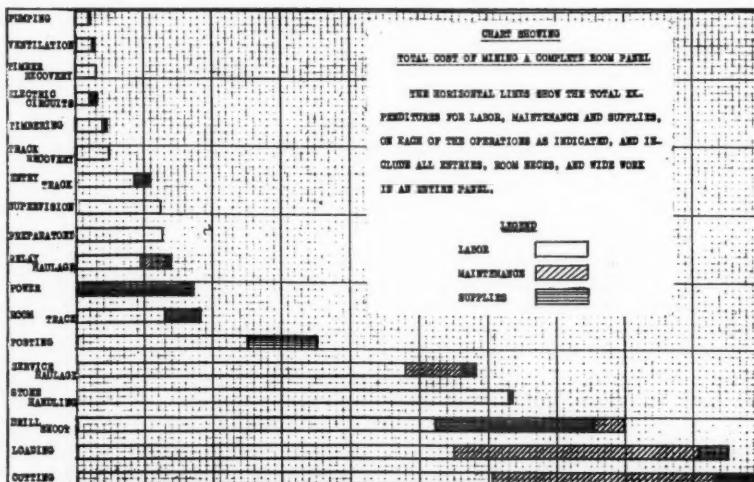
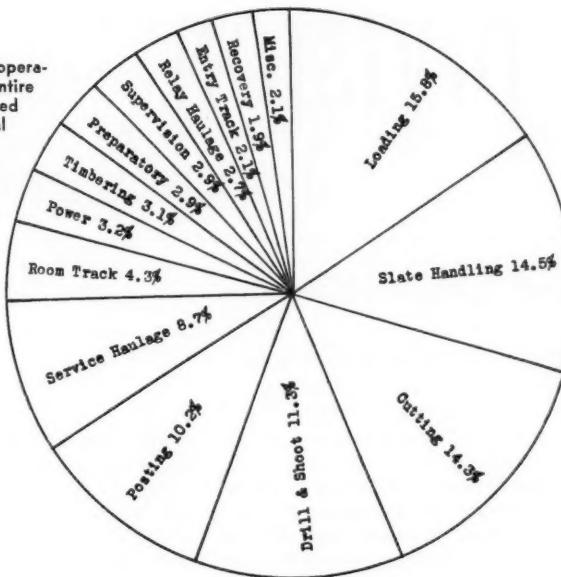


Fig. 1. Total amount of money expended for all operations, from the face to the main haulage side track, in mining an entire room panel

Fig. 2. Cost of each operation for mining an entire room panel—expressed in percentage of total cost of all work from the face to the main line haulage



### Method of Showing Operating Costs

After mechanical loading had been put in operation, the next step made by this company was to set up a system for determining accurate costs. It was realized that mining is more than putting coal into mine cars, and that there are at least a dozen operations that must be taken into separate account before a correct cost figure can be reached. In addition to direct labor used in each of their operations, there is also the labor of maintenance and the cost of supplies; further than this, an average cost over a long period must include complete mining, starting with the first development of the room entries and continuing clear through to the completion of the panel. Figures made on this basis can be depended upon to tell the whole story, and as a consequence, their analysis will indicate sources of cost reduction that otherwise would not be revealed.

Figures 1 and 2 are two methods used by this company for presenting to their officials a clear and comprehensive picture of the relation between the costs of different operating items. Figure 1 is based on the total amount of money expended in mining a complete panel, and figure 2 gives this same information expressed in percentage of total cost, instead of actual dollars and cents. The costs, incidentally, are prepared with extreme care and accuracy.

The division of the total cost, however, serves principally to indicate where detailed investigation should be made; time studies have been extensively used by this company in deter-

mining operating performances of the different crews, but there is still a further step in analytical methods that has been employed. This is illustrated by the way they arrived at the proper mine car capacity.

### Mine Car Capacity

An increased car capacity, by reducing the number of car changes, reduces the time of this delay to the loading machine, but there is a limit beyond which larger car capacities are not economical. In the first place, it is apparent that the amount of car change delay is in inverse proportion to the capacity of the car, and since this is the case, there is a much greater difference between a one and two-ton capacity than there is between a six and seven-ton capacity. A second factor is that

a mechanical loading operation uses a certain amount of non-productive time for maneuvering the machine, setting posts, and other special operations. Therefore, in determining the relation between mine car capacity and machine production, these factors must be taken into account, and the curves shown in figure 3 are based on actual operating figures such as machine loading rate, necessary delays, etc. Some assumptions were of course unavoidable, but these were reduced to a minimum.

Following the conclusions shown on this graph, the company decided that a seven-ton car was the most economical size for their operation, and new cars recently ordered are of that capacity. In presenting this chart, it must be emphasized that these curves apply to this mine only; under different conditions at other mines, a similar study might well show that six, eight, or ten tons was the most economical capacity for the mine cars.

### Slate Removal

This company is now starting a test on slate removal which will be of great interest to many mines. The seam at this operation has about 12 inches of draw slate that either comes down when the coal is shot or has to be taken down immediately after. It has always been customary to separate, underground, the slate from the coal, and as will be noted on the cost charts, this operation is rather expensive. In order to reduce the slate expense, a trial operation is now under way in which all slate that falls during the loading will

(Continued on page 46)

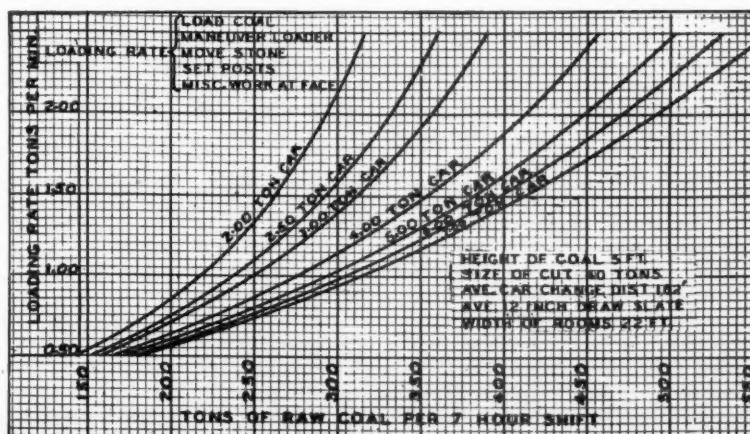
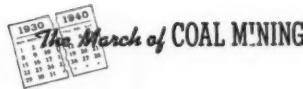


Fig. 3. Effect of various mine car capacities on loading machine production, as indicated by calculations based on actual performances



# With the COAL DIVISION

of the AMERICAN MINING CONGRESS

## SURFACE and Underground SUBSTATIONS

● *A Report to the Power Committee, by F. L. STONE*

EVERY coal property has its individual problems in deciding whether the conversion sub-station should be on the surface or in the mine, and there are a number of factors to

be considered in the selection of the sub-station location.

The following tabulation is an attempt to call to the operators' attention the majority of the points that are generally involved in arriving at a de-

cision. No hard and fast rule can be laid down which will cover all conditions. Each case must be studied and a decision arrived at after due consideration has been given to the local situation.

### Underground Installation

#### MATERIAL INVOLVED

High voltage cable in place, from source to substation.

Transmission line—lightning arresters.

Bore hole—cable supports.

Heavy d-c bore hole cable.

### Surface Installation

#### TRANSPORTATION OF EQUIPMENT

Can set be put in place without disassembly? If not, reassembly may be difficult and costly, due to insufficient clearances in which to work advantageously, low headroom, etc. If portable substation is purchased originally, transportation underground greatly facilitated.

Distance from R.R. siding to surface location. Does new road have to be built and maintained? Can set be transported assembled? If not, add cost of knockdown and setup.

#### HOUSING

Room must be ventilated with intake air and must in all cases comply with State Mining Laws.

Station may be any design which suits the operator's fancy, but must comply with Insurance Laws. Adequate foundations must be supplied for apparatus.

#### GENERAL

Lightning hazards much greater than underground.

During bad storms in winter in some locations the surface station is inaccessible.

The ambient temperature which always affects the ultimate machine temperature varies in some locations as much as 100 deg. F.

The surface substation, due to its remote location, is vulnerable to attack by malicious trouble makers.

Surface substations are not subject as a rule to underground conditions, such as squeezes, floods, gas explosions, etc.

The moving of a surface substation may be quite an undertaking, depending upon local conditions. Generally speaking, the same costs will be involved as in the original installation.

Little or no lightning hazard.

Except in major accidents—falls, floods, fire, or explosion—the substation is always accessible.

The ambient underground is practically constant and seldom exceeds 70 deg. F. This is very helpful to electric apparatus—very deep mines, excepted.

Underground atmosphere is invariably very humid. When a set is shut down for any considerable period, condensation occurs on the surface of the windings, which may be absorbed with injurious result.

Small inexpensive heater units frequently are installed which are energized only when the apparatus is shut down. This eliminates condensation.

Should it be necessary to move an underground substation which has been purchased as a portable station this becomes a very simple matter. If it is not of the portable type the same motions must be employed as during the original installation with the same expenses involved.

Like all machines underground there is always the hazard of flooding.

## When To Move a SUBSTATION or Add a New One

● *A Report to the Power Committee, by F. P. BRIGHTMAN*

**B**ECAUSE of the many variables involved it is exceedingly difficult if not practically impossible to draw up any set rules or formulae so that the answer as to when a substation should be moved or a new one added can be picked from a table. Therefore, it seems best to solve the problem by analyzing individually and collectively the several factors involved, most of which are listed in the tabulations below.

If the D. C. voltage at the working face is low with the attendant disadvantages, and the cost analysis indicates that it is more economical to move the substation than to correct the condition by adding feeder copper and the future life of the mine or section is sufficient to justify it, the answer is obviously: Move the old, or add a new substation. The latter decision involves the questions of relative location of production and haulage loads, together with total load on the existing substation and prospects of future load increases there and at the proposed new location.

It is, of course, difficult to evaluate, in terms of money, the benefits to be gained by raising the voltage at the face, but such evaluation should be made and included as part of the overall cost study.

Determination of the value of power losses should take into account the load factors and operating schedules throughout the year, as the length of time that a given load has to be carried over the feeder copper has an important bearing on the cost of losses.

### Tabulated Factors Suggested

Following are the tabulated factors suggested for consideration:

The capitalization of power losses should include the cost per kw. hour and also the demand charge if any.

Why—(1) To save the expense of excessive power loss in the D.C. distribution system.

(2) To raise the voltage at the working face, thereby:

(a) Increasing motor speed and therefore production and haulage.

(b) Pepping up the morale of the men.

(c) Reducing motor heating and armature burnouts.

When—It is time to move the substation or install another one when the working face has advanced to such an extent that the attainment of the objectives, outlined under "Why" is of sufficient value to justify it.

*Tangible Cost Factors to Be Considered.*—Reinforcement of D. C. dist. system copper as alternative to moving:

(1) Cost of reinforcing existing positive and negative feeder copper in order to obtain desired improvement in voltage at the face.

(2) Cost of power loss in the reinforced D. C. distribution system.

*Surface Substations.*—(1) Road to new location if none existing.

(2) Extension of A.C. transmission line, including right of way and new borehole.

(3) Power losses in extended A.C. line.

(4) New building.

(5) Equipment foundations.

(6) Actual moving of equipment including any necessary disassembly for handling reassembly and installation, control and main wiring, etc.

*Underground Substations.*—(1) Extension of A.C. power cable, or overhead surface line with necessary new borehole.

(2) Power loss in this extension.

(3) Extension of track to new substation if required.

(4) Excavation of new substation room including any roof bracing or other construction required, and provision for ventilation.

(5) Foundations, conduit, etc., for stationary equipment; alternatively ballasted trackage for portable equipment on wheels.

(6) Actual moving of equipment, including any necessary disassembly for handling, reassembly and installation, control and main wiring, etc.

Factors involved in consideration of possible new substation are:

(1) Expected life of mine and particular working area at new location.

(2) Magnitude of load on present substation from sources other than the particular working area to which it is proposed to move the substation.

(3) Possible necessity for substation in existing location because of haulage system or local load demands.

(4) Cost of complete new substation considering the various factors listed under surface and underground substation headings.

(5) Labor and other charges for operation and maintenance.

### Example Illustrating the Analysis

In order to illustrate the analysis procedure involved, let us assume that we are faced with the problem of deciding whether to supply a working-face-area load requiring 1090 amperes D.C. (300 kw. at 275 volts) delivered power from a substation 4,000 ft. away or move the substation to the load center. The power supply is 2,300 volt, 3 phase, 60 cycle, converted to 275 volts D.C. in a portable under-



Cables carrying power to the face

ground substation. The mine electrician is up-to-date in practice and installs the necessary positive, and, when necessary, negative feeder copper to limit the full load voltage drop at the working-face load-center to 20 percent. Well bonded 60-lb. rails are used and the trolley is frequently cross connected to the feeder.

If the drop at the face is to be limited to 20 volts, the total permissible resistance in the feeder and return circuit is .0374 ohms. We will assume that the installation is such that the resistance of the outgoing and return circuits are equal and, therefore, in order to fulfill these conditions, approximately 1,750,000 C.M. copper capacity is required for the outgoing feeder, and 500,000 C.M. cable is needed to supplement the rail return. The trolley will carry some current and, therefore, we will assume that the main feeder cable is 1,500,000 C.M.

A 300 kw. rectifier substation would draw approximately 90 amperes from the A.C. line and we can use 3-conductor No. 2/0 cable for transmitting the high tension power. Resistance of the No. 2/0 cable = 0.811 ohms per 1,000 ft. The power loss is the  $I^2R$ , or  $E I$  loss where  $E$  is the voltage drop. The full load D.C. losses for the 4,000-foot run with the feeder copper described above will therefore be 60 kw. or 20 percent. The corresponding loss in the cable for A.C. transmission is 7.9 kw. or 2.6 percent.

Obviously the load will fluctuate, so we will assume that the over and underload swings are such that 40 percent of the full load losses will be realized for a 21-hr. day.

It follows, then, that the losses with power at 6 cents per kw.-hr., a 21-hr. day and 250 working days per year will amount to  $(60-7.9) \times .4 \times .006 \times 21 \times 250 = \$732$  per year in favor of moving the substation.

If there is a demand charge clause in the power contract as is usually the case, eliminating the extra losses for D.C. transmission would reduce it appreciably. Let's assume that load fluctuations are such that the difference in demand was equal to the difference in full load losses and that the charge is \$1.77 per kw. The yearly difference in demand charge would be \$1,100. This is also in favor of moving the substation.

Comparative cost of the A.C. versus D.C. cables, based on V.C. and weather-proof braid finish on the D.C. feeder cable, a bare return cable, and rubber insulation plus flat band armor on the A.C. cable, is \$6,470 for the D.C. and \$4,330 for the A.C. cable.

A difference of \$2,140 in favor of the A.C. cable and moving. However, if bare cable on insulators is used for the feeder, as is frequently done, the difference is \$270 in favor of the D.C. cable. No attempt has been made here to evaluate the cable installation costs, since they vary so widely with different mines.

So far we have considered only the costs for the power wasted. Another somewhat intangible, but none the less important, result of long D.C. transmission lines is their attendant high voltage drop. In the example above we have assumed a maximum drop of 20 volts, but it is quite common to find much greater voltage drops, especially on long low capacity feeders.

It just isn't reasonable to expect motors to perform satisfactorily when subjected to such conditions. As is generally known, the speed of series motor drops almost exactly in proportion to the voltage reduction, i. e., 70 percent line voltage means only 70 percent speed on the motor and the machine it is driving. The speed of shunt and compound motors doesn't drop quite as fast, and the amount varies with different designs. Roughly, however, we can say that the speed of compound wound motors will drop about one-half, and that of shunt wound motors one-quarter as fast as the voltage. (Shunt wound motor speed will drop faster if the knee of the saturation curve is passed.) Such speed reductions mean correspondingly slower operation of the driven machine, be it locomotive, cutter or loader, although it doesn't necessarily follow that there would be quite the same percentage loss in production as there is drop in



Rewiring motor for mine locomotive

voltage, since there is machine idle time which must be included in the average.

In addition to the speed reduction, low voltage means considerably increased current on shunt and compound wound machines. For compound wound motors, it increases approximately one-half, and for shunt wound units three-quarters as fast as the voltage drops. Series motor current remains practically the same. These overcurrents increase the losses in the feeders, cause overheating and premature aging of the insulation, and excessive commutator wear, etc., all of which are an expense and inconvenience.

To sum up, we have a calculated extra power cost per year of \$1,832, neglecting the variable cable cost differential, loss of production, and increased motor maintenance to offset the cost of moving the substation. This moving cost is variable, under different conditions; but, particularly with portable mounted equipment, the answer in this example would be to move the substation.

## The March of Coal Mining

(Continued from page 43)

be loaded with the coal and separated mechanically on the surface at the existing cleaning plant.

Preliminary studies, as well as the trial operation, indicate that this procedure will result in a marked decrease in the operating cost. The problem of slate removal on the surface will not be difficult as would seem at first glance. A certain amount of the slate falls in large pieces, and these are removed over a bar screen that has openings larger than the maximum coal lump. The cleaning plant now handles 0 x 4-inch sizes, and the slate that is in the

plus 4-inch coal is removed at the picking tables with no addition to the crew that has customarily been employed. The slate that goes to the cleaning plant, having a much heavier specific gravity than the coal, is easily separated mechanically, and the present capacity of the cleaning plant has proven adequate to take care of this additional material.

### Conclusion

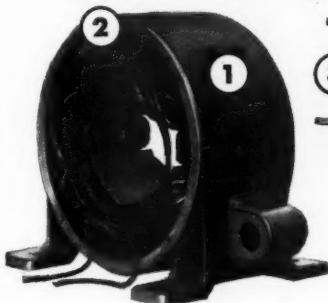
The plans for slate removal and determination of mine car capacity illustrate two types of problems that are encountered in mechanized coal mining. The efficiency of the proposed slate loading can be proven by actual

trial before it is adopted as standard practice, while the decision as to the capacity of the mine cars, once made, must stand, as changes are not practicable after the equipment is purchased and installed.

In describing the manner in which these problems have been approached by this company, it is important to repeat that the answers refer to this mine alone, and only the method of solution has a general application. It may be stated, however, that the decisions made by the officials of this company have not been based entirely on their own experiences; their cooperative policy has been extremely liberal, and they have not hesitated to give information nor to accept it from others.

# Taken Apart for Your Inspection

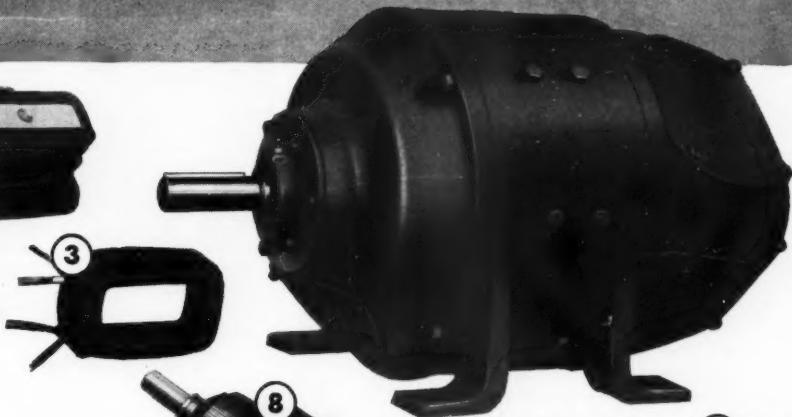
NOW See Why G-E Direct-current Motors Meet the  
Tough Requirements of Mining Service



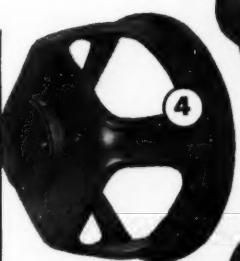
THE FRAME



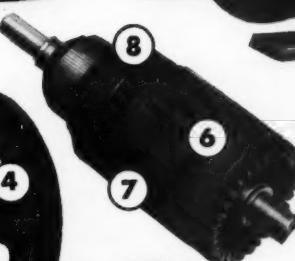
FIELD COILS



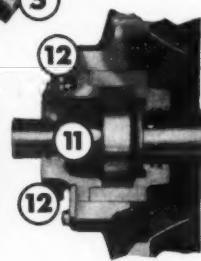
G-E dripproof, semi-enclosed direct-current motor



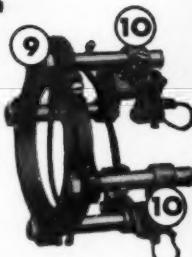
END SHIELDS



ARMATURE



BEARING ASSEMBLY



BRUSH RIGGING

## NOTE THESE FEATURES!

### THE FRAME

1. Rolled steel. Bored throughout its length.
2. Substantial 360-degree rabbet fit.

### FIELD COILS

3. Held firmly in place, assuring freedom from chafing and breakdown. G-E bonding varnish cements the coils into a solid mass. High resistance to foreign matter prolongs life of the windings.

### END SHIELDS

4. Provide mechanical protection and rigid bearing support. End-shield openings can be readily covered with flat plates or perforated covers.

### ARMATURE

5. Shaft readily removable.
6. Form-wound, pretreated coils. Mica tubes wrapped around slot portion. Coil receives several impregnations of G-E insulating varnish, which is baked on after each dipping. The result is a heat- and moisture-resisting insulation that is both tough and flexible.
7. High-grade, silicon-steel laminations.
8. Commutator is built up of copper segments.

### BRUSH RIGGING

9. Brush yoke clamped in position and easily adjustable.
10. Brush holders easily adjusted to maintain proper setting.

### BALL-BEARING ASSEMBLY

11. Cartridge-type ball bearings exclude dirt even when the motor is disassembled.
12. Convenient pressure-gun fitting and relief plug permit lubrication and flushing of bearings without motor shutdown.

WE WANT you to look at the parts of a typical General Electric d-c motor (Type B, 284 frame) and see for yourself how well suited it is for grueling service in coal mines.

As you study the illustrations, remember that G-E direct-current motors provide such advantages as long bearing life, excellent commutation, a highly protective insulation with remarkable bonding qualities, easily accessible brush rigging, and a con-

venient lubrication system.

Yes, here's a real mining motor, available in a wide variety of standard ratings, speeds, and enclosures. General Electric also offers a complete line of Bureau of Mines explosion-proof d-c motors for general underground service, as well as special loader and cutter motors similarly approved. Our nearest representative will be glad to give you complete details. General Electric, Schenectady, N. Y.

GENERAL  ELECTRIC

000-51

# Getting Set for the Coal Show

INTEREST in the forthcoming Coal Convention and Exposition of the American Mining Congress, to convene in Cincinnati, April 29-May 3, is reaching new highs throughout the coal fields of the United States. Committee members planning the Show, under the leadership of Harry Moses, National Chairman of the Program Committee, and E. M. Douthat, General Chairman of the Arrangements Committee, have shown unusual enthusiasm in the fine work accomplished to date, and this will carry right on through until their duties have been completely fulfilled.

## Program Has Vital Subjects and Authoritative Speakers

Take a good look at the accompanying preliminary program, now whipped virtually into final form by the Committee, with only a few gaps to fill. Most important in the latter connection is the matter of discussion. As you go over the vital subjects to be presented by authoritative speakers, decide on the ones most intimately concerned with your own work, and make a firm resolve to get up and give other operators the benefit of your experiences on some particularly interesting development—and, equally important, mull over what you know of other operations in your district and send the American Mining Congress names of mining men who are willing to contribute valuable discussion on particular subjects.

And all strippers please take particular note of the special round table discussion on problems peculiar to open pit operations, arranged for Wednesday afternoon. Be on hand for a ringside seat at this important forum, and



T. J. THOMAS  
Valier Coal Co.  
Attendance



R. H. MORRIS  
Gauley Mountain Coal Co.  
Welcome



WESLEY S. HARRIS  
Bicknell Coal Co.  
Floor



LOUIS J. OTT  
Ohio Brass Co.  
Publicity



J. W. HADDOCK  
Sullivan Machinery Co.  
Entertainment



A. W. HESSE  
The Buckeye Coal Co.  
Miners Exhibit

## Chairmen of the Committees on Arrangements

## Advance Program

Monday, April 29

### Morning Session—FACE PREPARATION

#### Opening of Convention

Coordination of Face Preparation With Mechanical Loading  
J. W. ANSTED  
Templeton Coal Co.

#### Face Preparatory Operations

J. T. PARKER  
Inland Steel Co.

### Afternoon Session—APPLIED SCIENCE

#### Educational Training

H. R. WHEELER  
Pittsburgh Coal Co.

#### Power Distribution Lines and Equipment

K. L. KONNERTH  
H. C. Frick Coke Co.

#### Roof Support in Coal Mining

FRANK G. SMITH  
Sunday Creek Coal Co.

Tuesday, April 30

### Morning Session—SURFACE PREPARATION

#### Economic Possibilities of Small Coal-Cleaning Units

J. P. HORNE  
Raven Red Ash Coal Co.

#### Recovery and Utilization of Refuse From Cleaning Plants

K. A. SPENCER  
Pittsburg & Midway Coal Mining Co.

#### Modern Coal Cleaning Practice

(a) Appalachian Field  
JOSEPH PURSGLOVE, JR.  
Pursglove Coal Mining Co.

(b) Rocky Mountain Field  
CARL S. WESTERBERG  
Utah Fuel Co.

#### **Afternoon Session—MECHANICAL LOADING AND CONVEYING**

##### **Duckbill Mechanical Loading**

V. D. PICKLESIMER  
South-East Coal Co.

##### **Mobile Machine-Loading on Conveyors**

G. S. JENKINS  
Consolidated Coal Co.

##### **Multiple Unit Conveyor Mining**

W. J. B. MAYO  
Koppers Coal Co.

#### **Wednesday, May 1**

#### **Morning Session—EQUIPMENT MAINTENANCE**

##### **Organization of Maintenance Crews in Mechanical Loading**

CHAS. R. NAILLER  
Hanna Coal Co. of Ohio

##### **Method of Keeping Detail Cost Records on Stripping Equipment**

(a) Stripping Shovels and Loading Shovels

W. W. YOUNGBLOOD  
Midland Electric Coal Corp.

(b) Overburden Shooting

C. W. WOOSLEY  
Binkley Coal Co.

##### **Breakdown Prevention Through Machine Inspection and Service Records**

CARR McCORMACK, JR.  
Newcastle Coal Co.

#### **Afternoon Session—MOBILE LOADING MACHINES**

##### **Shuttle Haulage for Mechanical Loading**

(a) Review of Developments  
H. B. HUSBAND  
Chesapeake & Ohio Rwy. Co. Fuel Dept.

(b) Operating Methods

HARRY S. GAY, JR.  
Gay Coal & Coke Co.

##### **Track-Mounted Loading Machines**

R. L. ADAMS  
Old Ben Coal Corp.

##### **Successful Pillar Recovery With Mobile Loaders**

J. M. CONNOR  
West Penn Power Co.

#### **Thursday, May 2**

#### **Morning Session—NATIONAL ECONOMIC PROBLEMS**

##### **Effect of Utilization on Coal Production**

E. C. PAYNE  
Consolidation Coal Co.

##### **Address**

(Subject and speaker to be announced)

#### **Afternoon Session—SAFETY**

##### **Safety Records With Mechanical Mining vs. Hand Mining**

L. E. YOUNG  
Cons. Engr., Pittsburgh, Pa.

##### **Accident Sources and Overcoming New Hazards**

L. A. HILL  
Chicago, Wilmington & Franklin Coal Co.

##### **Fixing Responsibility For Mine Accidents**

E. W. WYNNE  
Compensation Adjuster, Clinton, Tenn.

plan on contributing to the informal discussion that will ensue. K. R. Bixby, General Manager of Midland Electric Coal Corp., will keep the ball rolling as leader of the round table.

#### **General Arrangements Being Pushed**

The various committees on arrangements, directed by the men pictured

above, have gone a long way the past month in outlining plans for: stimulating attendance, an entertainment program with a zip, suitable welcoming of visitors at Music Hall, smooth functioning of events on the Convention program, promoting interest in the Miners' Exhibit at the Exposition, and building publicity designed to aid in promoting a record turnout.

#### **+++ SPECIAL ROUND TABLE SESSION ON STRIP MINING PROBLEMS**

##### **Wednesday Afternoon**

Chairman: K. R. Bixby, Midland Electric Coal Corp.

Subjects to be presented for discussion:

The Use of a 35-cu.-yd. Shovel.

Development of 80-ton Haulage Trucks.

Carry-all Scrappers as Auxiliary Unit for Overburden Removal.

Armored Ground Cable for Transmission Lines.

#### **+++**

#### **Exposition**

Arrangements for the best Exposition ever offered coal mining men are now virtually complete. The three huge floors of Music Hall will be fairly bursting with new machines and equipment—all capable of playing their vital part in today's modern coal mine. The place will be alive with ideas, and every manufacturer will be "on his toes" to explain how he can help you.

Here's the list to date of exhibitors—try and find a mining item that can't be supplied by one of them!

Abbe Engineering Co.  
Advertising Displays, Inc.  
Air Reduction Sales Co.  
Allis-Chalmers Mfg. Co.  
Allis Co., The Louis  
American Brattice Cloth Corp.  
American Car & Foundry Co.  
American Chain & Cable Co., Inc.  
American Cyanamid & Chemical Corp.  
American Steel & Wire Co.  
Anaconda Wire & Cable Co.  
Atlas Powder Co.  
Barber-Greene Co.  
Bemis Bro. Bag Co.  
Bethlehem Steel Co.  
Bixby-Zimmer Engineering Co.  
Bowdil Co., The  
Broderick & Bascom Rope Co.  
Brown-Fayro Co., The  
Brown, Inc., L. M.  
Calcium Chloride Association  
Cardox Corporation  
Carnegie-Illinois Steel Corp.  
Central Electric Repair Co.  
Centrifugal & Mechanical Industries, Inc.  
Chicago Pneumatic Tool Co.  
Cincinnati Mine Machinery Co., The  
Cities Service Oil Co.  
Coal Mine Equipment Sales Co.  
Coffing Hoist Co.  
Columbia Steel Co.  
Deister Concentrator Co., The  
Deister Machine Co.  
Deming Co., The  
Differential Steel Car Co.  
Duff-Norton Mfg. Co., The  
du Pont de Nemours & Co., Inc., E. I.  
Dustlix Corporation  
Edison, Inc., Thomas A.  
Electric Controller & Mfg. Co.  
Electric Railway Equipment Co., The  
Electric Railway Improvement Co., The  
Electric Storage Battery Co., The  
Enterprise Wheel & Car Corp.  
Flood City Brass & Electric Co.  
General Electric Co.  
Gibraltar Equipment & Mfg. Co.  
Goodman Mfg. Co.  
Gorman-Rupp Co., The  
Gould Storage Battery Co.

Gulf Oil Corp.  
 Guyan Machinery Co.  
 Haynes Stellite Co.  
 Hendrick Mfg. Co.  
 Hercules Powder Co.  
 I-T-E Circuit Breaker Co.  
 Jeffrey Mfg. Co.  
 Johnson-March Corp., The  
 Joy Mfg. Co.  
 Kanawha Mfg. Co.  
 King Powder Co., The  
 Koppers Company  
 Koppers-Rheolaveur Co.  
 LaBour Co., Inc., The  
 La-Del Conveyer & Mfg. Co.  
 Lee-Norse Co.  
 Leschen & Sons Rope Co., A.  
 Linde Air Products Co., The  
 Link-Belt Co.  
 McGraw-Hill Publishing Co., Inc.  
 McLaughlin Mfg. Co., Inc.  
 McNally-Pittsburg Mfg. Corp., The  
 Macwhye Company  
 Mancha Storage Battery Locomotive Co.  
 Marion Steam Shovel Co., The  
 Mechanization, Inc.  
 Metal & Thermit Corp.  
 Mine Safety Appliances Co.  
 Miners' Exhibit  
 Mining Congress Journal  
 Morrow Mfg. Co., The  
 Myers-Whale Co.  
 Nail City Bronze Co.  
 National Carbide Corp.  
 National Carbon Co., Inc., Carbon Sales Div.  
 National Electric Coil Co.  
 National Malleable & Steel Castings Co.  
 National Tube Co.  
 Nordberg Mfg. Co.  
 Ohio Brass Co.  
 Ohio Carbon Co., The  
 Osmose Wood Preserving Co. of America, Inc.  
 Owens-Corning Fiberglas Corp.  
 Penn Machine Co.  
 Pennsylvania Electric Coil Corp.  
 Philco Corporation, Storage Battery Div.  
 Portable Lamp & Equipment Co.  
 Post-Glover Electric Co., The  
 Productive Equipment Corp.  
 Prox Co., Inc., Frank  
 Pure Oil Co., The  
 Roberts & Schaefer Co.  
 Robins Conveying Belt Co.  
 Roebling's Sons Co., John A.  
 Rome Cable Corp.  
 Safety First Supply Co.  
 Sanford-Day Iron Works, Inc.  
 Shell Oil Co., Inc.  
 Simplex Wire & Cable Co.  
 Simplicity Engineering Co.  
 Socony-Vacuum Oil Co., Inc.  
 Standard Oil Co. (Ind.)  
 Stephens-Adamson Mfg. Co.  
 Sterling Pump Corp.  
 Sullivan Machinery Co.  
 Sun Oil Co.  
 Superior Carbon Products, Inc.  
 Talcott, Inc., W. O. & M. W.  
 Tamping Bag Co., The  
 Templeton, Kenly & Co.  
 Tennessee Coal, Iron & Railroad Co.  
 Tide Water Associated Oil Co.  
 Timken Roller Bearing Co., The  
 Tool Steel Gear & Pinion Co., The  
 Bertrand P. Tracy Co.  
 Tyler Co., The W. S.  
 Union Carbide & Carbon Corp.  
 Union Wire Rope Corp.  
 U. S. Bureau of Mines.  
 U. S. Rubber Co.  
 U. S. Steel Corporation Subsidiaries.  
 Viking Mfg. Co.  
 Watt Car & Wheel Co., The  
 Weir Kilby Corp.

Western Cartridge Co.  
 Westinghouse Electric & Mfg. Co.  
 West Virginia Rail Co., The  
 Wheat Lamp Sales, Inc.  
 Wilson Welder & Metals Co., Inc.  
 Wood Preserving Corp.

### Entertainment

The Entertainment Committee is really "going to town" this year in laying plans for four evening shows with smash hits that should result in a new high mark of solid fun. Plan definitely to be on hand at the gathering of King Coal's "court" in the Pavillon the first three evenings, and in the Hall of Mirrors for the closing banquet.

With Chairman J. W. Haddock presiding, meetings of the Committee were held on February 8 in Cincinnati and March 15 in Pittsburgh, at which everything from M. C.'s to banquet headliners was thoroughly discussed, and definite bookings made with thoroughly reliable professional agents to run off shows with clock-like precision.

Of outstanding interest will be a full card of amateur boxing bouts between A. A. U. fighters from coal mining districts throughout the country, to be held in the Hall of Mirrors either Tuesday or Wednesday. Most of the boys have gone a long ways in the Golden Gloves tournaments, and the Committee had a tough time choosing



the best candidates from the large field of entrants received. Reports from the field indicate that the rivalry is going to be plenty keen—not only between the fighters, but also amongst the fans, boosting their own field man. Be on hand to cheer the "winnah," and have one swell time! As we go to press, special features for the other evenings are being arranged.

Special entertainment is again being developed for the large number of ladies expected to be present, including luncheon, bridge parties, and sightseeing trips during the four days. Feminine fun will reach a new high.

A full official preview of all final plans for the entire meeting will appear in the April JOURNAL. Watch for it ten days before the Show opens.



**KING COAL SAY:**

*Bring Your*

**BRAIN-CHILD**  
*to the Miners' Exhibit*

**H**AVE YOU—or some one in your company—devised or invented a BETTER WAY of doing it?

Don't be backward—bring it OUT, to the 1940 Coal Show in Cincinnati, April 29-May 3, 1940. Again this year will be featured the Miners' Exhibit, where coal men may display, free of charge, practicable operating "kinks and gadgets" they have developed.

### PRIZES WILL BE AWARDED

An exhibit may consist of a model, drawing, photograph, or an actual device. Write for application blank, rules and other information immediately. Entries must be in April 1.

**Miners' Exhibit Committee**  
 American Mining Congress

Munsey Building

Washington, D. C.

## Reciprocal Trade Agreements

(Continued from 32)

able injuries that have been inflicted on our industry, must leave to the judgment of Congress whether the defects are implicit in the broad purposes of the law or should be corrected by imposing legal curbs on its administrators. We believe that Congress, if it renews the Act, should include amendments to compel its administrators to live up to their own stated principle, of avoiding injury to established domestic industries. They should be forced to withdraw single commodities from treaties if domestic industries are damaged. They should not be permitted to negotiate concessions on a given commodity except with the country constituting the major source of imports of that commodity. Modification or cancellation of a treaty should be mandatory when the exchange rate of the signatory country's currency drops more than 10 percent below the rate prevailing at the time the treaty is signed.

## The Wagner Act and Mining

(Continued from 41)

back wage accumulations under the long-drawn-out delays of Board procedure.

### Pre-Hearing Advice of Regional Director

One interesting thing was this: On the first day of our hearing the regional director arrived in town and told us that it was useless for us to go into this hearing. He said, in effect, "You haven't any chance in this matter because the Board will issue an order directing you to re-employ these men and to pay them back wages. They will direct you to post cease and desist notices, and they will direct you to recognize the CIO as the exclusive bargaining agency for your men; they will order dis-establishment of the local union, and I advise you to settle this thing up the best way you can right now, and have the hearing called off." This was before any testimony had been heard at all. When the Board's order was finally issued a year later, the order checked the advance information of the regional director all the way down the line, as far as these general statements were concerned.

In testifying before the Senate com-

mittee I brought this point out, and the general counsel of the Labor Board, Mr. Fahy, filed an answer stating that he did not understand what I meant to imply. What I meant to imply was that the Board, in its combined role of prosecutor, judge and jury, apparently had planned its decision before hearing the evidence. The Board points with pride to the many cases it has settled without a hearing. Perhaps the answer to this is that many employers have become convinced before the hearing that their case has already been decided.

There is much more that might be said, but it is getting late, and I will turn the discussion back to your chair-

### BOOK REVIEW

IRON BREW—A CENTURY OF AMERICAN ORE AND STEEL, by Stewart H. Holbrook. 352 pages. The Macmillan Company, New York, 1939. Price, \$2.50.

Literature on the history of the great iron and steel industry of the United States is replete, indeed, but not until now has a popular book appeared which recaptures the color and romance, and retells the human side of the industry's history, from ore through transportation and the steel mills, as does this book from Mr. Holbrook's vivid pen.

Starting out with a popularized version of the discovery of iron ore and its early development on the Marquette range, the scene is shifted in successive chapters to similar accounts of the Menominee range, early transportation, the Gogebic and Vermilion ranges, and finally the Mesabi, to complete the discussion on mining proper. Included are plenty of "cousin-jack" tales, mine superstitions and disasters, strikes, the saloons and fancy houses of the mining towns, the mingling of races—in all, a wealth of fascinating views of the iron

ranges that have been assembled only after extensive personal interviews with oldtimers and a comprehensive study of dusty literature and dog-eared newspapers long since turning yellow from age.

A chapter tracing the development of modern "red-bellies" on the lakes, and of the ore loading and unloading devices leads into the second part of the book, treating with steel making.

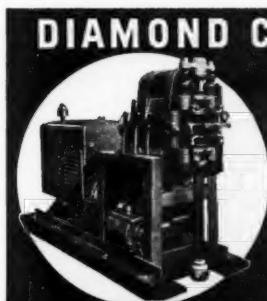
"Kelly Takes Cold Air" is the chapter heading for a popular version of William Kelly's experiments with converters—the story of how he lost in the patent litigation to Sir Henry Bessemer, whose process revolutionized the industry in the '50s and '60s. Later chapters deal in interesting fashion with the development of "big steel," including many anecdotes, some of which are not overly complimentary, concerning the so-called "steel barons." Much of the latter half of the book is taken up with accounts of struggles to unionize steel labor, in which it is perfectly clear that Mr. Holbrook has thrown his sympathies 100 percent with the laborer.

Fascinating as is the entire book, there is almost an overdose of sensationalism, with a strong tendency to state only one side of the case in the labor struggle. Undoubtedly there is justification for emphasis on some of the abuses cited, but the inference behind the reputedly true story of the anonymous "Mr. Smith" in the last chapter, as typifying many of the "moguls" of today, is decidedly prejudiced and untrue.

### CORRECTION

In the article entitled "Concentrating Tri-State Ores by Differential Density Cone," by Elmer Isern, in the February MINING CONGRESS JOURNAL, sequence of three paragraphs was inadvertently misplaced in printing. The last paragraph on page 16 and the first two paragraphs on page 17 rightfully belong after the first paragraph of the second column on page 17. We sincerely regret this mistake.

**DIAMOND CORE DRILLING CONTRACTORS**



TESTING COAL AND ALL MINERAL PROPERTIES - USING OUR LIGHT GASOLINE DRILLS... THEY SAVE FUEL AND MOVING COSTS... WE GUARANTEE SATISFACTORY AND PROPER CORES..

PRE-PRESSURE GROUTING FOR MINE SHAFTS... GROUND SOLIDIFICATION FOR WET MINE AREAS BY OUR STOP GROUT METHOD. WATER WELLS AND DISCHARGE HOLES DRILLED AND GROUTED... ELECTRIC DRILLS FOR INSIDE MINE DRILLING..

**MOTT CORE DRILLING CO.**  
HUNTINGTON, W. VA.



# WHEELS of Government

## ● As Viewed by A. W. Dickinson of the American Mining Congress

THE behavior of the Congress and of the Congressional Committees in early March shows clearly that the drive is on for adjournment at as early a date as the leaders can accomplish. The fact that the President departed from Washington for his fishing trip in Pacific waters has no political or legislative significance—he needed the rest. The use that is being made of the Senate and the House of Representatives as a sounding board by opposition Democrats and of course by the Republicans is causing the administration and the national Democratic leaders real concern, as they feel that the opposition arguments and appeals are reaching the "grass-roots" to an alarming extent. The Democratic Congressional leaders have set their sights on May 15 for adjournment, and the House and Senate Committee Chairmen are under instructions to hold action on bills to a minimum and to weed out controversial measures which will cause delay and furnish ammunition to the opposition forces.

### Taxation—Coal Legislation

Thus far the Congress has held consistently to its program of reducing appropriations, but there is a strong prospect that the economies so far effected will be wiped out by increased benefits for agriculture. This will again place Congress on the horns of the dilemma, of either raising additional taxes as requested by the President in his budget message, or increasing the legal debt limit of \$45-billion. In the search for an answer to this problem, members of Congress will watch closely the March 15 tax returns, and meanwhile are casting about for possible additional funds, such as might be made available through reduction of the Treasury's cash balance or through realizing on the profits from silver purchases made at substantially less than the \$1.29 monetary rate. The Committee on Ways and Means through a subcommittee will hold hearings on the Patman Chain Store Tax bill, and the announcement of a hearing by another subcommittee on the bill by Representative Robert Allen, of Pennsyl-

vania, to amend the Guffey Act is expected in the near future. The Allen bill would remove the price fixing and taxing provisions, including the tax of 1c per ton of coal produced, and would liberalize the sales agency treatment in the Guffey Act.

On March 7, by a vote of 88 to 74, the House approved a floor amendment by Representative Allen which struck an additional \$1,000,000 from the appropriation for the Bituminous Coal Division under which the Guffey Act is administered. This is an interesting demonstration of the feeling at the Capitol toward the Coal Act and its administration, as the Budget Bureau had previously cut off approximately \$1,000,000 and the House Appropriations Committee \$200,000 from the Bituminous Coal Division. As the vote was taken on the House floor to strike the \$1,000,000 from the appropriation the scene was dramatic when the well-disciplined Republicans under Floor Leader Joe Martin, of Massachusetts, poured through the cloak-room door onto the floor to cast their votes.

The Federal Coal Mine Inspection Bill S. 2420, by Senator Neely, of West Virginia, is now pending before the House Mines and Mining Committee after passing the Senate on January 18. On March 7 the Mines and Mining Committee appointed a subcommittee to consider the matter of hearings on this bill, the enactment of which is very much desired by Interior Secretary Ickes. The subcommittee consists of Andrew L. Somers, New York, chairman; J. Hardin Peterson, Florida, and Fadjo Cravens, Arkansas, Democrats; and Fred Bradley, Michigan, and Thomas D. Winter, Kansas, Republicans.

### Foreign Trade Agreements

On February 14 the Committee on Ways and Means reported the Doughton resolution to extend the reciprocal foreign trade agreements authority without amendment. Representative Wesley Disney, of Oklahoma, contended strongly within the committee

as well as on the floor for the removal of the import-excite taxes on oil, lumber, coal and copper from the scope of the negotiators of these treaties. Representative James G. Scrugham, of Nevada, also asked that the resolution be amended on the floor as follows:

"If at any time an established domestic industry as a whole shall be damaged as a result of the inclusion of its products in a reciprocal trade agreement, the President shall institute negotiations with the signatory countries seeking to withdraw or sufficiently modify the concession made upon that product to remedy the damage inflicted upon said established domestic industry.

"Damage to an industry under this section shall be determined by the Court of Claims of the United States upon complaint of any representative of an industry directed against the United States and setting forth the nature and extent of such damage. A copy of such complaint shall be served upon the Attorney General of the United States, and such service and proceedings in the Court of Claims hereunder shall be given priority and shall be under such rules as the Court of Claims may adopt."

The House passed the bill without amendment on February 23. At hearings before the Senate Finance Committee on March 1 the mining industry was represented by Secretary Julian D. Conover, of the American Mining Congress; President Howard I. Young, of the American Zinc Institute; and Secretary Evan Just, of the Tri-State Zinc and Lead Ore Producers Association. The mining witnesses stressed before the committee the harm which has been done to the domestic zinc industry through the failure of the State Department to limit concession on mineral commodities to the country which constitutes the principal source of imports. The failure of the State Department to take action under the escape clause provided in the Canadian treaty, which was effective January 1, 1939, was severely criticized, and it was proved to the committee that the principal benefits of zinc imports resulting to foreign countries had been enjoyed, not by Canada, but by Mexico, Belgium and Peru. Finance Committee Chairman Pat Harrison at the conclusion of the mining presentations stated publicly that the committee members feel

that an error was made by the State Department and that they would take steps to see that corrective action is taken.

Although the mining and other natural resource witnesses urged the Finance Committee to require Senate ratification of trade treaties the bill was reported to the floor without amendment, and a severe battle is anticipated in which the final vote is expected to be close. There is a strong feeling in the Senate and in the country that some check should be placed upon the action of the trade negotiators.

#### National Labor Relations Board

Hearings before the Senate Committee on Education and Labor on proposed amendments to the National Labor Relations Act have now been finally closed, and the committee is awaiting action of the House on the amendments proposed by the Howard W. Smith Investigating Committee. This committee, which has made a thorough job of inquiring into the work of the National Labor Relations Board, has just received an additional \$50,000 appropriation with which to carry on. In the course of their hearings it was clearly brought out that the National Labor Relations Board had resorted to blacklisting practices to deny various Federal services to employers who in the opinion of the Board were not complying with the National Labor Relations Act. It was also clearly demonstrated that the Board was extremely active in procuring witnesses to go before the Labor Committees of the two Houses and oppose the proposed amendments to the Wagner Act.

The Smith Committee bill would abolish the present three-man Board and create a new Board of the same number. An administrator would be charged with making all investigations of alleged unfair labor practices and handling all requests for elections. The administrator would try cases before the Board, and the Board would act only as a judge in unfair labor practice cases besides handling the actual detail of elections. The right of free speech is restored and an employer may petition the Board for an election. The Board must decide cases on a "preponderance" of the evidence and is charged to abide by the rules of evidence of the District Courts.

There are other desirable changes recommended by the Smith Committee, but opposition will be strong in both Labor Committees, and organized labor is expected to resist vigor-

ously. In the meantime Senator Wagner has introduced a mediation bill which would establish a three-man Board in the Department of Labor to (1) "encourage the making and maintenance of labor standards agreements between labor and management and (2) settle all differences arising during the negotiation of the agreements and to aid in interpreting the agreements once in effect." Senator Wagner's stated purpose is to remove all assumed authority of the National Labor Relations Board to settle any but questions of self-organization and collective bargaining rights of workers, but it is difficult to see the need of his proposed legislation in the face of the fact that there already exists in the Department of Labor a competent conciliation service under the direction of Dr. Steelman, a particularly well-qualified man for the work. If there is need for additional conciliation work a small additional appropriation could be made for Dr. Steelman's Division without setting up any more costly boards.

#### Wage-Hour

The Department of Labor and its Wage-Hour Division have made it clear that they do not wish any amendment made to the Wage-Hour Act in the present session of Congress. Representative Ramspeck, of Georgia, is understood to be pressing House leaders for action on his amendments, and with House members performing in an increasingly independent manner it is possible that action may ensue.

Administrator Philip B. Fleming is increasing the enforcement activities of the Wage-Hour Division, and his Legal Section is reaching into the "twilight zone" in instituting litigation on test cases under the act. The case recently opened against Swift & Company in the Chicago Federal District Court involving nearly \$4,000,000 in the wage claims of approximately 150,000 employees is an indication of what is coming. The case is concerned with the 14 weeks seasonal exemption from maximum hours granted to the meat-packing industry; the Wage-Hour Administration has held that the 14 weeks selected must apply uniformly to all employees, whereas the company had followed the practice of "staggering" its 14 weeks' seasonal exemption so that certain employees worked additional hours in a given 14 weeks and other employees in different weeks.

#### Stream Pollution

Early in March the wild-life societies through Representative Mundt, of

South Dakota, were able to embody in the Barkley-Mansfield bill at the time of its passage by the House the so-called Mundt amendments which are so harmful to industry that they are herewith reproduced:

"(d) (1) After date of enactment of this act, no new sources of pollution, either by sewage or industrial waste, shall be permitted to be discharged into the navigable waters of the United States and streams tributary thereto until and unless approved by the Division; and

"(2) The discharge of new sources of water pollution without review and approval of the Division as required under the foregoing provisions is hereby declared to be against the public policy of the United States and to be a public and common nuisance. An action to prevent or abate any such nuisance may be brought in the name of the United States by any United States attorney, and it shall be the duty of such attorney to bring such an action when requested to do so by the Division, the Surgeon General, any duly constituted interstate agency dealing with control of water pollution, any State agency dealing with control of water pollution, any State health authority, or any incorporated municipality. Such action shall be brought as an action in equity and may be brought in any court of the United States having jurisdiction to hear and determine equity cases."

The Senate disagreed with the amendments of the House and appointed conferees as follows: Senators Barkley, Kentucky; Sheppard, Texas; and McNary, Oregon. House conferees have not been appointed because of the illness of Chairman Mansfield, of the House Committee on Rivers and Harbors, but they are expected to be Chairman Mansfield, Texas; Gavan, New York; deRouen, Louisiana, Democrats; and Seger, New Jersey, and Carter, California, Republicans. A meeting of the conferees is not expected to be held for several weeks.

Presidential reorganization order No. 3 has not as yet been made public, but White House sources have announced that the transfer of the Forest Service from the Department of Agriculture to Interior will not take place. This is a matter in which the mining industry of the West has been particularly interested, and the American Mining Congress was one of many organizations and individuals which had registered vigorous protest against the transfer with the White House.

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Egyptian archeologists exploring a tomb at Sakkara uncovered hundreds of ancient copper instruments, believed to be early medical equipment. Included in the find were 35 daggers, several hundred needles, 79 chisels, saws, bodkins, vessels and other objects—all made of copper. It is believed that this tomb is the resting place of King Zer, Egypt's second Pharaoh.



# NEWS and VIEWS

## Severe Tipple Fire Losses in Logan County

Burning of the tipple of the Logan Chilton Coal Company at Rita, W. Va., on February 24, with an unofficially estimated loss of \$50,000, brought to more than \$500,000 the fire losses to Logan county coal companies during late January and February. The fire at Rita started about 2:30 a. m. from an undetermined cause.

Other fire losses in the five weeks preceding the Rita fire included \$200,000 at Mallory, \$200,000 from two fires at Slagle, and \$75,000 at Mud Fork.

## Williamson Operators Reelect Woods

The Williamson Coal Operators Association met at Williamson, W. Va., February 16 and reelected L. E. Woods, president of the Crystal Block Coal Company at Huntington, its president for the forthcoming year.

C. A. Hamill, president of the Sycamore Coal Company, was named vice president; J. B. McLaughlin, general manager of the Earlston Coal Company, Kermit, secretary, and J. J. Ardigo was reelected treasurer.

Named to membership on the board of directors were George W. Craft, of Litwar, F. E. Ritter of Red Jacket, George W. Gehres of Hammarville, Pa., G. D. Davidson of Harmon, Va., W. S. Leckie of Columbus, Ohio, Tom Pritchard of Delbarton, L. E. Tierney of Stone, Ky., O. W. Evans of Williamson, J. W. Strickler of Welch and W. W. Walker of Bluefield.

Sir James Elwood-Cowie of London, Eng., identified with British mining interests, was the principal speaker at a banquet which was attended by N. P. Rhinehart, chief of the West Virginia Department of Mines, and John F. Daniel, head of the Kentucky Mines Department.

## Bagdad Resumes Production

The Bagdad Copper Corp., with mine 30 miles northwest of Hillside, Ariz., is now sending 300 tons of ore daily to its 500-ton concentrator. The mine has been idle over a year.

## Change of Address

On and after February 19, 1940, the engineering department of the H. C. Frick Coke Co. will be located on the fourth floor of the Fayette Title and Trust Building, Uniontown, Pa., P. O. Box 1391. E. C. Auld is chief engineer of the company.

## Mining Institute Celebrates Twentieth Birthday

Twenty years of achievement in the work of instructing members in safety and modern mining methods in the production of coal was celebrated January 27 at the Mountainair Hotel in Mt. Hope, W. Va., by the New River and Winding Gulf Mining Institute in a banquet given to its officers, members, and invited guests. More than 200 attended.



More than 200 mining men gathered at Mt. Hope, January 27 to celebrate the 20th birthday party of the New River and Winding Gulf Mining Institute

at contests. This procedure met with some opposition at first, but now it is a well-established practice in other coal mining states. The Institute was also first to establish a consolation prize to all team members under third prize rating and the first to encourage negro miners to have their own mining institute.

At the banquet celebrating the twentieth anniversary, President Lilly introduced F. F. Dixon as toastmaster. Mayor P. H. Garrett, of Mt. Hope, welcomed the gathering and spoke of the good it has accomplished in years gone by and of its usefulness and hope for the future.

The principal address was made by S. C. Higgins, secretary of the New River Operators' Association. Mr. Higgins referred to the Institute as a melting pot in which the ideas of mining men generally were fused for greater safety endeavors. He said the operators had their association from which miners were barred, and the miners had their union from which operators were barred, but that the Institute afforded a meeting ground for both organizations where they could work out common difficulties.

Edward Graff, vice president of The New River Company, stressed the

need for individual safety efforts on the part of the men who do work, and said that the superintendent or foreman was indeed fortunate who could imbue his men with a sense of personal responsibility.

Other speakers on the program included C. R. Hill, mayor of Oak Hill; D. L. McElroy, director of the School of Mines of the University of West Virginia; and J. Alfred Taylor, editor of *The State Sentinel*.

Group singing and other entertainment features concluded the program.

### Acetylene Association to Meet in Milwaukee

The 40th convention of the International Acetylene Association will be held in Milwaukee, Wis., April 10, 11 and 12, with convention headquarters at the Schroeder Hotel.

The program will include a scientific forum on oxy-acetylene cutting of metals, a series of round-table discussion meetings, and, on each of the three days of the convention, a group of technical sessions, at which will be presented many interesting papers by outstanding technical men and experts on applications of the oxy-acetylene process of welding, cutting and heat-treating. Further details will be released at an early date from the association's headquarters at 30 East 42nd Street, New York City.

### Vanadium Corporation to Resume Operations at Naturita

Following 20 years of inactivity, the Vanadium Corporation of America is returning to southwestern Colorado to resume operations at Naturita.

The company announced early in January that it is constructing buildings and installing equipment on this property, and will begin vanadium operations around July 1. It will be the first time that the company has operated a vanadium property in the United States since 1920.

This is in the same general territory as the new operations of United States Vanadium Company near Paradox Valley—an area from which some \$18,000,000 worth of radium was extracted previous to the early twenties.

Regardless of the weather—sizzling heat or freezing cold—motor coach travel will henceforth be comfortable with the introduction of air-conditioned buses. Copper and its alloys play an important role in all types of air-conditioning equipment.

### PETER F. LOFTUS

*Consulting Engineers*

ENGINEERING AND ECONOMIC SURVEYS, ANALYSES AND REPORTS ON POWER APPLICATIONS AND POWER COST PROBLEMS OF THE COAL MINING INDUSTRY

Oliver Building Pittsburgh, Pa.

## Coal Division Establishes Machinery for Adjustments In Prices and Marketing Rules

Little "news" trickled out of the Interior Department's Bituminous Coal Division during the latter part of February. Division officials refuse to set even an approximate date for release of minimum prices and marketing rules and regulations. Rather than get themselves out on the proverbial limb, officials state that prices and the marketing rules "are to be made effective this spring."

Since the final price hearing was concluded in January, the three Division examiners who presided over the hearing have been engaged in preparing recommendations for the prices. Prices will be established by Director Gray after he has heard exceptions to the examiners' recommendations. Upon appeal, Secretary Ickes will review Director Gray's findings.

Most important action of the Division during the past month was the establishment of machinery to make adjustments in minimum prices or marketing rules and regulations for the sale of bituminous coal "at the mine" after they are made effective this spring. Rules and regulations adopted by the Division for making adjustments call for notification of all interested persons as to the details of each specific change requested. The procedure will provide means for adjusting the established minimum prices and marketing rules both to

meet changes in conditions which take place after they become effective, and to make any changes which actual experience with them may reveal to be necessary.

Special machinery has been provided to speed up the handling of cases where immediate temporary or preliminary changes are requested while final action is pending.

A person desiring a change must file with the Division papers which fully describe the details involved, give the names of competitors who would be interested in the change, along with other pertinent information. However, before filing the request with the Division, the person first must serve copies of these papers upon such competitors, and upon the bituminous coal producers' board for his district. This board must notify other interested producers' boards, which in turn will notify any of their own code members who are interested and have not already been notified.

The adopted rules list the following parties as eligible under the Coal Act to request price or marketing rule changes, or to intervene in such actions before the Division: Coal producers who are members of the Bituminous Coal Code; district producers' boards or any member of such a board; states or political subdivisions of states; and the Director of the

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Pickands Mather & Co.	Mather, Pa.
Pittsburgh Coal Co.	Negley, Ohio
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Consumers' Counsel Division in the Office of the Solicitor of the Department of Interior.

All requests for changes will be set for hearing either before Division Director Howard A. Gray or a designated Division presiding officer.

A person who wants immediate action pending final disposition of his request for a change may ask for an informal conference or for a formal hearing. In either case, the producers' board for the district must be notified by the person at least 24 hours before the request for immediate action is made. In the informal conferences, persons may present their views orally before Division Director Gray or designated Division employees. Such conferences may be attended by all interested persons, who may participate, subject to rules and restrictions the person presiding deems advisable. A schedule of such conferences will be kept available for public inspection.

Even after a temporary or preliminary order, changing prices or marketing rules, is granted by the Director, persons opposing it may request that the change be stayed, terminated, or modified. However, in such instances, the person requesting a stay or such action must give the person who obtained the preliminary change at least 24 hours' notice before filing a case. The rules provide that requests for stays or modifications of temporary price changes will be set for hearing within 15 days, unless the Director should rule that the time be extended.

Where a Trial Examiner hears a petition for change in established prices, exceptions to his recommendations may be filed, together with requested findings and orders, with the Division Director within 15 days after the examiner's report was filed. Briefs and requests for oral arguments before the Director also may be filed. Parties are given an opportunity to expedite their case by waiving the filing of a report by the examiner, and presenting the case to the Director after the close of the hearing.

### Coal Wins For Model House Heat

Coal was the fuel selected for the heating plant of the model home at the recent Detroit Builders' show, as the result of four years of effort by L. J. Lowell, district manager at Detroit for The Koppers Coal Co.

Each year a model house is given away at the show. In the past heating equipment has been alternated between gas and oil. After four years of effort Mr. Lowell, this year, induced the show management to install a heating plant and stoker for solid fuel in the 1940 house.

Between 150,000 and 200,000 persons visited the house during the show and saw an actual demonstration of the comfort, convenience and economy of house heating with coal.

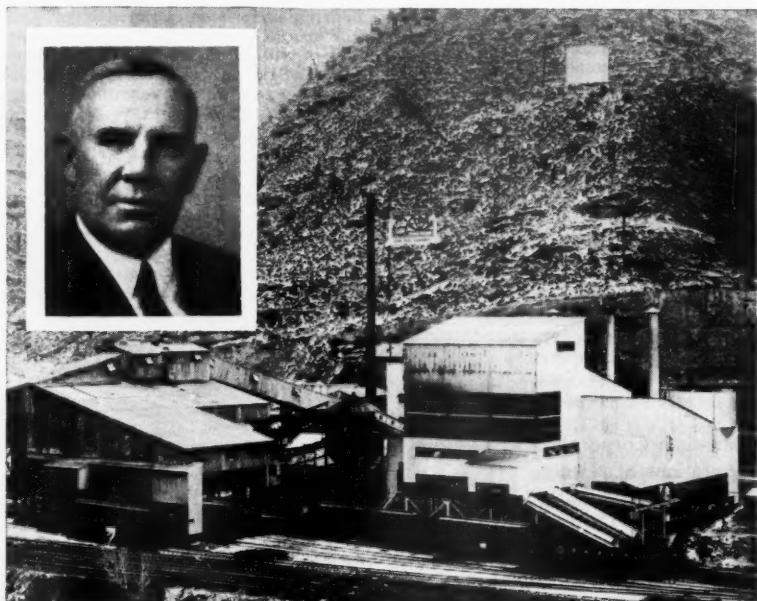
### Utah Fuel Opens New Washing Plant

More than 200 coal mining men, together with state, county, and municipal officials, participated in ceremonies formally opening the new \$350,000 processing plant of the Utah Fuel Company, February 24, at Castlegate, Utah.

The new plant, ultra-modern in every respect, can turn out about 250 tons of washed, sized, dried, blended, and oiled fuel per hour, handling sizes up to 3 inches in diameter. Raw coal from the mines passes into the tipple (at the left in view above),

The nut and pea coals pass through oil vapor sprays for *desprufing* and then are automatically lowered into railroad cars for shipment. The coarse stoker coal, uniform in both size and quality, is conveyed to a screen heat drier, where the surface moisture is removed.

The fine stoker coal goes first into an Elmore centrifugal drier, where most of the surface water is thrown off, after which it is conveyed to a Roto-Louvre drier, where the final dewatering is completed. Different sizes are then conveyed by separate bucket elevators to mixing and metering bins, from which desired proportions of each size can be combined in



Utah Fuel Company's new washing plant (right) at Castlegate, Utah. Moroni Heiner (inset), president of the Utah Fuel Company, delivered the welcome address at the banquet celebrating opening of the plant February 24

where lump and stove coals are screened out and picked by hand. Coal 3 inches and under in size is dumped into a pit, which acts as a reservoir to feed the plant.

From the pit the coal is conveyed by an endless belt a distance of 250 feet up an 18-degree incline into the new plant (at right in above cut). It is dumped first into a Link-Belt Simon-Carves wash box, where the pure, clean coal is floated along by water made turbulent by the upward flow of compressed air, perfectly regulated. Impurities and extraneous matter sink to the bottom of the wash box, whence they are removed by bucket elevators. Two "electric eyes" automatically control the depth of waste in the wash box and regulate its discharge.

The cleaned pure coal is carried by the stream of water from the wash box and deposited on classifying screens, where any remaining particles of fine coal are washed out by a strong spray of clean water, and the coal is separated into nut, pea, coarse, and fine stoker coals.

the mixing conveyor. Finally, the mixed stoker coal is fed through a forced oil spray into railroad cars for delivery to dealers and industrial plants.

For the benefit of the visitors, most of whom arrived by special train from Salt Lake City, the plant was operated at full capacity during the afternoon.

Luncheon was served to the guests at the Castlegate amusement hall prior to the plant tour. After the tour, they were served a banquet in the amusement hall, at which Moroni Heiner, president and general manager of the Utah Fuel Company, reviewed the company's history and described the significance to the Utah coal industry of the new plant.

During the 58 years of the company's existence, Mr. Heiner reported, it has paid out \$81,000,000 in wages, "and even during the darkest days of the depression not a single pay day was missed." Improvements, reaching their climax in the new plant, have totaled more than \$10,000,000.

"When the company was first or-

ganized," he said, "coal mining was a crude process, done almost entirely by hand. Now, however, it is a highly scientific industry, using extremely technical machinery which, contrary to most people's opinion, has increased rather than reduced the number of employees. And our employees now are more highly skilled than ever before."

Other speakers at the banquet included Frank A. Jugler, of the Utah State Industrial Commission, representing Governor Henry H. Blood; R. C. Young, of Boise, purchasing agent for the state of Idaho, representing Governor C. A. Bottolfsen; E. J. Burnell, of Chicago, vice president of the Link-Belt Company; E. O. Howard, president of the Walker Bank and Trust Company; E. A. West, general manager of the Denver & Rio Grande Western Railroad; Mayor J. Bracken Lee, of Price; George M. Gadsby, president of the Utah Power and Light Company; Herbert A. Snow, president of the Salt Lake City Chamber of Commerce; Reed Smoot, director of the Utah Fuel Company; and W. D. Bryson, general superintendent of the concern.

Joseph Parmley, secretary and purchasing agent of the host company, was master of ceremonies.

A detailed description of this new modern plant will appear in an early issue of the *JOURNAL*.

#### A. S. M. O. A. Birthday Party

The second anniversary of the organization of the Arizona Small Mine Operators Association was appropriately celebrated with birthday parties held in 50 Arizona localities on February 10. These parties were featured by a state-wide radio broadcast between 8:00 and 9:00 in the evening which made it possible for the association's 3,600 members to participate in a party common to all.

Charles F. Willis, state secretary of the A. S. M. O. A., was master of ceremonies during the broadcast, and opened the program by observing that the first council of the organization was organized at Superior on February 11, 1938, when 19 members were enrolled. "Today," Willis continued, "there are 54 councils, one in each important mining section in the state, and over 3,600 members. There are 300 leaders of these councils serving as members of executive committees; there are many thinkers on small mine operation problems and they are meeting each and every month to discuss the things that are holding them back and attempt to work out a solution." Willis went on by pointing out the many problems facing the small mine operators, together with the accomplishments made in solving them. This has been done only through the fine spirit of helpfulness and cooperation that has developed as the result of the work that has been done to create a better understanding of the small mine problems among state officials and citizens.

Governor R. T. Jones, the next speaker, praised the democratic na-

ture and principles of the association, and went on to comment on the benefits being derived from the Department of Mineral Resources. The governor listed as two important accomplishments of the association, the restoration of silver to the monetary system of the nation and the copper

excise tax achievement which he described as "one of the most important victories Arizona has achieved since statehood."

Other speakers on the program included W. J. Graham, J. S. Coupal, Maurice Hedderman and Jackson Hoagland.

#### J. F. Joy Awarded Scroll as Pioneer of American Industry



Left—Mr. Joy, with original model of coal loader, 25 years ago. Right—facsimile of award scroll. Inset—Mr. Joy as he is today

A silver scroll was recently awarded by the National Association of Manufacturers to J. F. Joy as "A Modern Pioneer on the Frontier of American Industry." Little need be said concerning Mr. Joy's achievements, as most every person engaged in mining coal knows of his accomplishments in the field of mechanical loading and his many contributions to modern coal mining. There have to date been nearly 100 United States and foreign patents granted upon his inventions, with a considerable number yet pending. Practically all are directed to improvements in coal mining machinery.

His is a fine example of what can be achieved, in spite of odds, by unswerving perseverance and unshakable determination.

Forced by circumstances to quit school and enter the mines at 14 years of age and at the same time vowing to become an engineer is a start worthy of note by many of the more fortunate young men in the mines today. His success may be measured by his outstanding achievements in the field of coal mine mechanization and his many inventions in daily use throughout the mining areas of the world.

His contributions have had much to do with lowering the cost of coal production and lessening the labor of those that toil in our mines, and this tribute accorded Mr. Joy by the National Association of Manufacturers has been well earned.

#### Mine Inspectors' Institute

The annual meeting of the Mine Inspectors' Institute of America will be held May 27-29 at the Claypool Hotel, Indianapolis, Ind., according to a recent announcement. Further details on the meeting will be released at a later date.

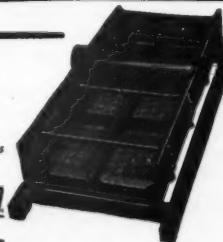
#### Underground Copper in New York City

Under the streets of New York City lies one of the richest copper mines in the world—a vast network of 38,000 miles of copper wire and cable that weighs more than 220,000,000 pounds.

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# PERSONALS



**Gloyd M. Wiles** has been elected vice president of the Park Utah Consolidated Mines Company, and re-elected director and general manager. Other officers reelected were **Harris Hammond**, of New York, president; **J. H. Devine**, Ogden, Utah, executive vice president; **Elsie M. Trousdale**, of Ogden, secretary; and **W. L. Pratt** of New York, treasurer.

**L. von Perbandt** has been elected president of Allen & Garcia Company, succeeding the late **John A. Garcia**. **John A. Garcia, Jr.**, is vice president, and **William von Meding**, secretary and treasurer.

**Adolph Legsdin**, for the past several years with the Solvay Process Company in Syracuse, N. Y., has accepted the position of Associate Professor of Mineral Dressing in the Metallurgy Department of the Missouri School of Mines and Metallurgy at Rolla, Mo., a division of the University of Missouri.

**Mr. Legsdin** assumed his new duties at the School of Mines on January 29, where he is now teaching a course in ore dressing. **Dr. William R. Chedsey** is director of the school.

**John H. Davis**, office manager for the Phelps Dodge Corporation at Douglas, Ariz., has been promoted to manager of the company's New Cornelia Branch at Ajo. He succeeds **Michael Curley**, whose retirement has been announced.

Some time ago it was stated that **Chas. R. Kuzell**, superintendent of the Phelps Dodge smelter at Clarkdale, Ariz., was to succeed Mr. Curley when the latter retired. However, when **W. N. Saben** resigned as manager of the United Verde Branch because of ill health, it was decided that Mr. Kuzell should continue in the Verde district.

Mr. Curley is still at Ajo, and will remain for a while to assist in familiarizing Mr. Davis with his new duties. Mr. Curley and family will take up future residence in California.

**Paul Everly** has been appointed superintendent of the Pond Creek Pocahontas Company's No. 3 mine.

**A. S. Knoizen** was promoted to the position of vice president in charge of sales of the Joy Manufacturing Company at a recent meeting of the board of directors. Mr. Knoizen has been associated with the company for the past 17 years, and has held the position of sales manager for last six years.



**Otto L. Yauch**, assistant chief engineer for Pickands, Mather & Company in the Lake Superior district, has been promoted to chief engineer. He takes the place of **J. C. Metcalf** who was recently promoted to assistant manager, at the same time as **E. W. Leach** was also made an assistant manager.

**B. S. Holdren** has been appointed superintendent of the Powellton No. 4 mine of the Koppers Coal Company.

**Frederick G. Tryon**, chief of the research section of the Bituminous Coal Division, Interior Department, died February 16 in Washington, D. C., of pneumonia, following a 10-day illness. His age was 48. His death was attributed by his friends to a run-down physical condition resulting from day and night work over a long period in preparation of data for use in the establishment of minimum prices.

The following tribute was paid the deceased by Director **Howard A. Gray** of the Coal Division:

"Beyond doubt Mr. Tryon was one of the nation's best informed men on the coal industry. He had been prominently identified with practically every major governmental activity regarding bituminous coal for nearly a quarter century."

**Fred O. Johnson** was recently named superintendent of the Rosedale Coal Company's Rosedale mine.

**Arthur Waldman**, formerly superintendent of the Hamilton mine, Tennessee Coal, Iron & Railroad Company, has been appointed chief engineer of the coal mines division, with headquarters at Pratt City, Ala., succeeding **I. W. Miller**, resigned, according to an announcement by **C. E. Abbott**, vice president in charge of raw materials.



**David Brown**, formerly mine foreman of the Hamilton mine, has been promoted to superintendent of that mine, succeeding Mr. Waldman.

**A. C. Fieldner**, chief of the Technologic Branch of the U. S. Bureau of Mines, has occupied the position of acting director of the Bureau since the resignation of Dr. John W. Finch on January 31. **C. W. Henderson**, chief engineer of the western offices of the Economic Branch of the Bureau with headquarters in Denver, Colo., has been in Washington in the capacity of administrative assistant to the director, the position held in the past by **J. H. Hedges**, who has been transferred to the Bureau's College Park station.

"His knowledge was of great value to the Government, the people of the United States, and particularly to the Bituminous Coal Division and members of the coal industry in administering the Bituminous Coal Act."

Dr. Tryon had been a consistent defender of the Guffey Coal Acts to establish minimum prices, and was the principal government witness in defense of the first Guffey Act of 1935. He served in a similar capacity with regard to statistical matters during hearings under the second Guffey Act at intervals during the past two or three years.



**George W. Starr**, for more than 40 years associated with the Empire gold mine at Grass Valley, Calif., died at San Francisco January 21 at the age of 77. Mr. Starr was in charge of the mine during its infancy, and later became its managing director. Virtually his entire mining career was spent in the Grass Valley district, with the exception of a period when he worked in South Africa.

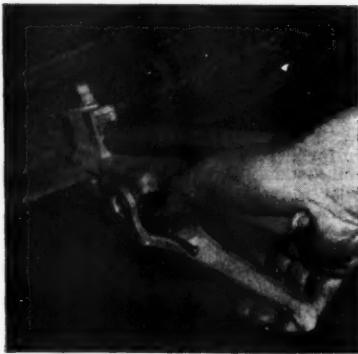
**W. W. Kicker**, well-known coal mining executive, died in Tuscaloosa, Ala., February 17 at the age of 70. Mr. Kicker was an associate mine inspector for Alabama for a number of years, and was superintendent of the Risco mine of Republic Steel Corp. for several years prior to its closing.



# MANUFACTURERS' Forum

## Return Circuit Clamp

The Ohio Brass Company, Mansfield, Ohio, introduces a new plier-type ground clamp especially designed for completing the ground or return circuit connection for portable electrically operated equipment. This device, known as the type P ground clamp, provides a pair of plier-type jaws

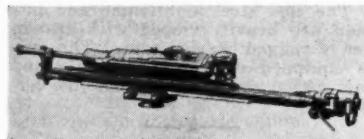


which are primarily designed to grip the rail bond cable. They may also be easily attached to the rail base itself. The jaws are operated by a heavy steel spring. The negative or ground cable from the portable machine is clamped in an adjustable cable grip. Jaws and body of the clamp are made of high-strength bronze.

## Drifter Rock Drill

A new drifter rock drill, known as the 100B, has recently been added to the Thor line of mining and contractors' tools by the Independent Pneumatic Tool Co., 600 West Jackson Boulevard, Chicago, Ill. The 100B is designed for heavy duty drifting in mining and large tunnel work.

Used with 1½-inch and 1½-inch round lagged steels, its power and strong rotation give it remarkable



drilling speed in the hardest formations. In addition, a constant blowing action keeps the hole clean, and for final hole cleaning a manually operated valve is easily accessible for extra blowing power.

One outstanding feature of the 100B Drifter is common to all Thor Rock Drills. This is the positive, short-travel valve which controls the air admitted to the tool and allows just the amount of air to enter that is required to operate it most efficiently. Automatic lubrication protects against wear.

Another development recently announced for use with Thor Drifters is the new Thor "Power Feed." This, stated by the manufacturers to be a distinct advancement in automatic feeds, is so simplified in design and operation that it is controlled by only one handle instead of the usual two handles for throttle and brake. This single control makes the operation of the drill through the Power Feed much easier and faster, particularly in gravelly formations. Also provided is a speed control by means of which the speed of the machine may be regulated according to the hardness of the formation.

The complete line of Thor Sinker or Hand-hold Rock Drills has also been redesigned to provide new handling ease and strength. This has been accomplished in part by the use of a new type retainer recently developed which is spring-cushioned to absorb the blow when the steel is not against the rock. This new retainer is completely enclosed and sealed against dirt and grit to minimize wear and reduce maintenance expense.

A new catalog, No. 42, giving complete details and specifications on those new Thor tools, as well as on all the other tools in the complete line, has just been published, a copy of which may be had by writing the company.

## Vernier-Control Variable Speed Transmission

Announcement is made by Link-Belt Company, Philadelphia, that it is now in position to equip all sizes of the Link-Belt P. I. V. Gear variable speed transmission with vernier control, for installations where extremely fine control of speed changes is required.

This vernier control can be supplied with either one of two ratios—7½ to 1 or 30 to 1, and is equipped with two hand wheels. One is for direct control; the secondary, or vernier type control hand wheel will provide either 30 turns or 7½ turns to one of the direct wheel, depending upon which ratio of worm-gear reduction set is furnished.

As vernier control is said to provide the fine sensitivity required for true micrometer adjustments of speed, the manufacturers are particularly rec-



ommending it for such services as synchronizing the speeds of two machines; justifying for shrinkage and expansion of such products as textiles and paper; controlling feeders; on weighing operations; obtaining exact register; controlling the overlay of wire covering on wire-producing machinery; or wherever the uniformity of a product can be assured by such close speed regulation.

Link-Belt Company 40-page Book No. 1574, covering vernier and other types of P. I. V. Gear control, will be sent to any reader upon request addressed to the company at 2045 West Hunting Park Avenue, Philadelphia.

## Electric Arc Welder

A new single operator motor-generator arc welder, requiring only one control device for operation, has just been announced by Wilson Welder and Metals Company, Inc., 60 East 42d Street, New York, N. Y.

Known as the Wilson "Hornet," this welding machine employs for its control a single, simple handwheel lo-



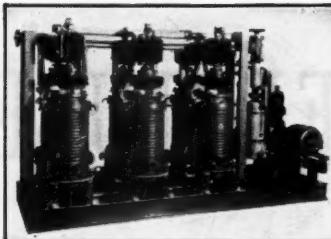
cated on top of the unit. Adjustment of this handwheel permits the operator to obtain an infinite number of current settings. Dial markings are so accurately calibrated that meters are not required.

Single-pole control design assures a current output that will not vary, re-

sulting in a constant, uniform arc at all times. Accidental reversal of polarity is impossible, because the electric current is so designed that a small snap switch must be flicked by the operator to change the polarity.

The "Hornet" is a two-bearing unit, with motor rotor and generator armature mounted on a common shaft. Adequate ventilation is furnished by propeller blades attached to the revolving shaft. Although shielded arc electrodes are recommended, the "Hornet" will operate with equal efficiency where bare electrodes are used.

The Wilson "Hornet" is supplied in three sizes—Frame BA 200, rated 200 amperes; Frame BA 300, rated 300 amperes; Frame BA 400, rated 400 amperes. Further information and descriptive literature may be obtained by writing the company.



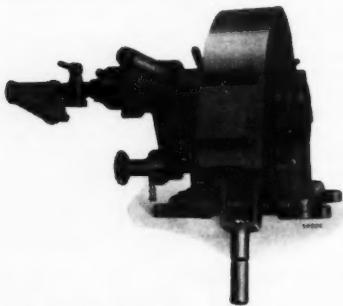
dividual cathode. The tanks, which are externally cooled by water, are generally mounted in groups of six on a heavy structural steel frame. This frame also supports the vacuum pumping equipment which is connected to the tanks through a vacuum pipe manifold. The arc ignition and control equipment is also mounted and wired on this frame.

As is evident from the illustration, the single-anode Excitron unit is particularly suited for applications where the amount of available head room is limited.

Due to the closer spacing between an anode and its associated cathode than in the multi-anode type of rectifier, the voltage drop in the mercury arc is reduced, and as a result the company claims that the efficiency of the Excitron unit is from 3 to 4 percent higher in the lower voltage brackets. Although this advantage is particularly pronounced at 250,300 volts, the Excitron rectifier is none the less equally adaptable for use at higher voltages. While possessing all the advantages inherent in the single-anode type of rectifier, the Allis-Chalmers Excitron unit does not depend for its operation on a control tube, but is said to make use of very sturdy and simple arc ignition and control devices.

### Drill Steel Cutter and Shank Grinder

Ingersoll-Rand announces a new, Size 500, combination drill steel cutter and shank grinder. Designed to handle solid or hollow steel up to and including 1½-in. hexagon, round or quarter octagon, it cuts the steel cleanly and squarely in only a few seconds without burning. A quick-acting, self-locking vise holds the steel rigidly on both sides of the cut.



The unit can be readily changed from a cut-off machine into a shank grinder by removing the cut-off wheel and substituting a grinding wheel. As a grinder, it can be used for squaring up striking faces of the shanks of drill steel, moil points, chisels, and the striking end of rock drill pistons.

The machine is powered with an Ingersoll-Rand "Multi-Vane" air motor.

For further details, address all communications to Ingersoll-Rand Company, 11 Broadway, New York City.

### New Rectifier

The Allis-Chalmers Manufacturing Company, Milwaukee, Wis., manufacturer of mercury arc power rectifier equipment, announces a single-anode power rectifier which, to distinguish it from their multi-anode type, they designate as their Excitron type. Instead of having all the anodes in one vacuum chamber, the Excitron consists of factory-assembled groups of relatively small vacuum tanks, each containing a single anode and its in-

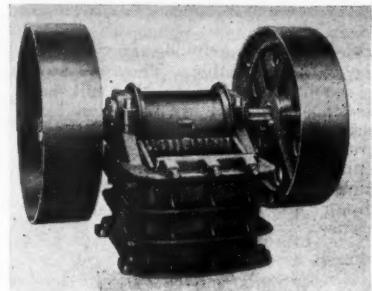
riage travels. The torches and tracing devices are supported on the carriage. Operating on either 110 or 220 volts a.c. or d.c., the unit requires a minimum of floor space. Even including the work table, the new planograph requires a working area of only 5½ by 10½ ft.

Cutting range in single torch operation is 24 in. wide by 72 in. long. This length can be increased indefinitely in multiples of 72 in. by utilizing additional tracing tables. Maximum diameter of circle cuts is 24 in. When two torches, mounted on the regular operating bar, are employed for simultaneous cutting, the cutting area for each torch is 12 in. wide by 72 in. long. Two circles each up to 12-in. diameter can also be cut with the torches mounted in this manner.

### Jaw Crusher

A new 10 x 24 jaw crusher has been developed by the Diamond Iron Works, Inc., Minneapolis, Minn. In this unit the features claimed are greater capacity at lower power costs, with more uniform product size control. This unit is built with over-size, heavy duty roller bearings in pitman and journal boxes, with extra heavy forged alloy steel heat-treated eccentric shaft.

Extra long pitman allows the use of long manganese jaw plates, with graduated contour, that gives positive



breaker grip and rapid passage of reduced product. The ribbing and contour of these jaw plates are designed to crush to desired size with minimum under- and over-size materials.

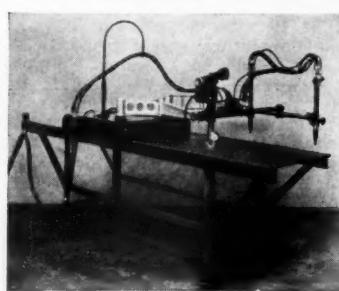
All crushing and abrasive resistant parts are made of the highest grade cast manganese steel obtainable, and mainframe, pitman and all stress resistant parts are of electric steel casting annealed.

The cast steel mainframe and pitman are heavily ribbed with cast-in heavy rugged bearing seats. The unit is equipped with safety toggle and fast action reversing ratchet jaw adjustment.

### Airco Gas Cutter Has Wide Flexibility

The extreme flexibility of use of the new Airco No. 10 Planograph announced by Air Reduction Sales Company, New York, is demonstrated by its ability to gas cut straight lines, rectangles, circles, and irregular shapes from ferrous metal of any thickness within the present practical limits of the cutting torch. Although a stationary-type machine, the new unit can readily be moved by crane to different localities in the shop.

The No. 10 Planograph consists of a tracing table upon which the car-



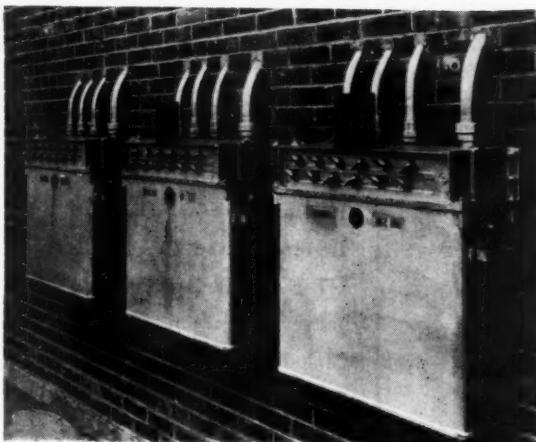
### Change of Address

Roberts and Schaefer Company announce the removal of their office from the Wrigley Bldg. to the Bell Bldg., 307 N. Michigan Ave., Chicago.

## Oil-Immersed Lighting Panelboards

New oil-immersed panelboards, using thermal trip branch circuit breakers, for the protection of lighting circuits in locations exposed to corrosive elements and explosion-hazardous atmospheres, have been announced by the Westinghouse Electric and Manufacturing Company. A new thermal-trip breaker has been developed for these panelboards to insure practically constant tripping characteristics regardless of temperature changes.

The new breaker has a compensating bimetal mounted outside the chamber of the breaker frame in which the main tripping bimetal is enclosed. This compensating bimetal is affected only by the general temperature of the whole tank of oil. Its motion is transmitted to the tripping bimetal through a link, thermally and electrically insulating the two members and passing through a small clearance opening in the breaker wall. The base of the tripping bimetal is pivoted, and while its deflection is dependent jointly upon the current and the general oil temperature, the pivoted base is moved just enough



by the compensating bimetal to neutralize that part of the deflection of the tripping bimetal which is due to the general oil temperature. This makes the free end of the tripping bimetal responsive only to the load current.

The breaker is compensated within commercial limits permitting zero to 10 percent decrease in rating when the surrounding oil temperature is 140° F., and zero to 10 percent increase in rating at oil temperature of 10° F. At 75° F., the deviation is zero and at intermediate temperatures the limits are proportionate.

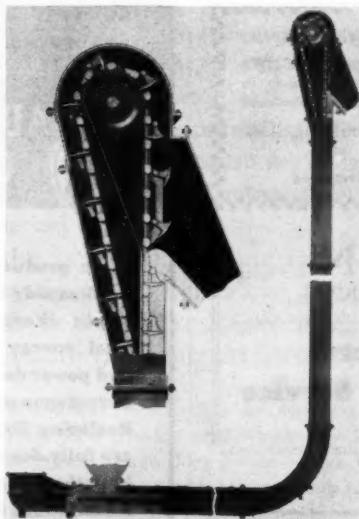
## Elevator-Conveyor

The Jeffrey Manufacturing Company, Columbus, Ohio, announces the Jeffrey Mass-Flo elevator-conveyor—a new low cost means of handling a wide variety of material. With a single unit, material can be conveyed in a horizontal, vertical or inclined direction.

Extremely simple in both design and construction, the Mass-Flo consists of a steel casing through which solid pivoted flights spaced at intervals on a single strand of chain, move the material in a solid mass or column, as shown in the above cross-section view of an "L" type.

The company states that the action is so gentle that there is very little if any agitation of the material—consequently, breakage and degradation are virtually eliminated, an important factor in the handling of friable materials. Low in initial cost, the Mass-Flo requires small space for installation, and is practically self-supporting since the casing itself forms a rigid box-like girder or column which can be readily braced or anchored to walls or supports.

Operation and maintenance are also unusually low, according to the manufacturer, since the unit operates at slow speed and flights do not scrape, but virtually float in the stream of moving material. The unit feeds it-



self gently and uniformly from full feed spouts or hoppers without flooding, jamming, overloading or breakage of material, thus eliminating the need for a separate feeding unit.

More detailed information may be found in company's Bulletin 730, a copy of which will be sent upon request.

## CATALOGS AND BULLETINS

• **BIT DRESSING EQUIPMENT.** *Ingersoll-Rand Co.*, 11 Broadway, New York, N. Y. Form 2554 illustrates and describes company's new Jackbit Grinders. 12 pages.

• **EARTH MOVING EQUIPMENT.** *Bucyrus-Erie Co.*, South Milwaukee, Wis. Bulletin FBE-106 on the 10-B Excavator. 32 pages. (Replaces FBE-105).

Bulletin 37-B-4 on company's new and improved 37-B Shovel-Dragline-Clamshell-Crane-Dragshovel. 32 pages. (Replaces FBE-373).

Bulletin 44-B1 on the 44-B Shovel-Crane-Dragline-Clamshell. 32 pages.

Bulletin DL-1 on company's line of Draglines. 32 pages.

Bulletin TETD-18 announces a complete line of Bucyrus-Erie's dirt moving equipment for the new International Diesel Tractor TD-18. 8 pages.

Bulletin D-1007 on company's 100-B Shovel and Dragline. 32 pages. (Replaces D-1106).

Mailing piece W-28 on the 10-B Shovel. 24 pages.

• **CATERPILLAR TRACTOR CO.**, Peoria, Ill. Form 5350 on company's D7 Diesel Tractor. 32 pages.

• **R. G. LeTourneau, Inc.**, Peoria, Ill. Form SC-134 stresses the completeness of company's Carryall as an excavating outfit. 8 pages.

Form 135 pictures various advantages of company's Carryall in numerous applications. 8 pages.

• **ELECTRICAL EQUIPMENT.** *General Electric Co.*, Schenectady, N. Y. Bulletin 3085-A on company's Single-phase Oil-immersed Spirakore Distribution Transformers. 12 pages.

Bulletin 2080 on company's A-C and D-C Solenoids for supplying a straight-line magnetic thrust for general industrial applications.

Form 2426B on Outdoor Oil-Blast Circuit Breakers. 8 pages.

Form 2420 on Capacitor-Motors. 4 pages.

Form 3226 classifies GE Demand Meters, and includes a sizable section containing pointers as to selection of this type of equipment. 16 pages.

• **Ohio Brass Co.**, Mansfield, Ohio. Catalog 22, attractively bound in green and white, is devoted to O-B mining and industrial products, including a complete listing of company's line materials for mine service, rail bonds, locomotive equipment, control devices, catenary materials, and mine car couplers. 160 pages.

• **Westinghouse Elec. & Mfg. Co.**, E. Pittsburgh, Pa. Descriptive data 11-200 describes sizes 0 and 1 De-ion Non-Reversing Linestarters for across-the-line starting of squirrel-cage induction motors and as primary switches for wound-rotor induction motors. 4 pages.

Descriptive data 15-020 describes company's line of Standard Duty Pushbuttons for a-c and d-c pilot circuits.

Descriptive data 36-160 on company's Type KA Outdoor Group Operated Disconnecting Switches. 4 pages.

• **SCREENS.** *Robins Conveying Belt Co.*, 15 Park Row, New York, N. Y. Bulletin 107 on company's Liquid Screens.

*The W. S. Tyler Co.*, Cleveland, Ohio. Bulletin 919 on Developments in Screening Equipment. 4 pages.

Bulletin 918 on company's complete equipment for sieve tests. 4 pages.

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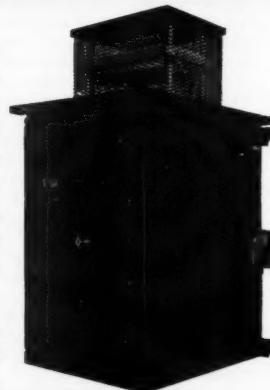
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